Lesson Overview

LESSON 9

Sort and Count Objects

Lesson Objectives

Content Objectives

- Sort objects into given categories.
- Count the number of objects in each category.
- Compare the number of objects in each category.

Language Objectives

- Circle objects that belong in a given category.
- Identify objects that do not belong in a group.
- Determine what all objects in two groups have in common (i.e., the grouping category).
- Sort a group of similar objects into categories (based on color, size, etc.).
- Tell which group of sorted objects has more than, fewer than, or the same number as another group.
- Discuss with a partner strategies to sort.

Prerequisite Skills

- Compare up to 10 objects.
- Compare numbers to 10.

Standards for Mathematical Practice (SMP)

SMPs 1, 2, 3, 4, 5, and 6 are integrated in every lesson through the *Try-Discuss-Connect* routine.*

In addition, this lesson particularly emphasizes the following SMPs:

5 Use appropriate tools strategically.

6 Attend to precision.

7 Look for and make use of structure.

*See page 1i to see how every lesson includes these SMPs.

Lesson Vocabulary

- **sort** to group objects by how they are alike.

Review the following key terms.

- **compare numbers** to decide if one number is greater than, less than, or equal to another number.
- **equal** the same value, same size, or same amount.
- **less, less than, fewer, fewer than** the group or number with fewer, not as much, not as many.
- **more, more than, greater, greater than** the greater number, quantity, or amount.

Learning Progression

In Kindergarten children are introduced to data-generating activities that produce categorical data. Categorical data are derived from sorting objects into groups.

In this lesson children generate categorical data by classifying objects and sorting them into categories. Building upon earlier lessons on counting and comparing numbers, children then count to find the number of objects in each category, and compare the numbers using language such as *the same as, equal to, more than, greater than, less than,* or *fewer than*. After sorting, children may group like amounts together.

In Grade 1 children will continue to build on these skills when they organize and represent data from two or three categories. They will also ask and answer questions that involve adding and subtracting the numbers of data points.

Lesson Pacing Guide

Whole Class Instruction

SESSION 1
Explore
45–60 min

Interactive Tutorial* *(Optional)*
Prerequisite Review: Count up to 10 Objects in Rows or Arrays

Sorting and Counting Objects
- Start *5 min*
- Try It *20 min*
- Connect It *15 min*
- Close: Exit Ticket *5 min*

Additional Practice
Lesson pages 165–166

Building Fluency
Use throughout lesson

SESSION 2
Develop
45–60 min

Sorting and Counting Objects
- Start *5 min*
- Try It *5 min*
- Discuss It *15 min*
- Connect It *15 min*
- Close: Exit Ticket *5 min*

Additional Practice
Lesson pages 169–170

Fluency Practice
Compare Numbers to 10
Find One More Than a Number to 9

SESSION 3
Develop
45–60 min

Sorting and Counting Objects
- Start *5 min*
- Try It *10 min*
- Discuss It *10 min*
- Connect It *15 min*
- Close: Exit Ticket *5 min*

Additional Practice
Lesson pages 173–174

Fluency
Sorting Objects

SESSION 4
Refine
45–60 min

Sorting and Counting Objects
- Start *5 min*
- Apply It *10 min*
- Discuss It *25 min*
- Close: Exit Ticket *5 min*

Additional Practice
Lesson pages 177–178

SESSION 5
Refine
45–60 min

Sorting and Counting Objects
- Start *5 min*
- Apply It *10 min*
- Discuss It *5 min*
- Small Group Differentiation *20 min*
- Close: Exit Ticket *5 min*

Lesson Quiz or **Digital Comprehension Check**

Lesson Materials

Lesson *(Required)*	*Per child:* 10 counters, 24 connecting cubes (10 each of two different colors, 3 red, 3 blue, 4 yellow), 2 crayons (1 blue, 1 green), 10–15 objects with sortable attributes (such as attribute blocks or buttons), copy of Close Slide (Session 5) *Per pair:* 1 number cube labeled 5–10, 10 objects such as buttons or attribute blocks
Activities	*Per pair:* 1 penny, 1 nickel, 1 dime *For display:* 60 connecting cubes (15 each of four different colors), 1 opaque bag *Activity Sheet:* Number Cards 0 to 10: Small**
Math Toolkit	counters, connecting cubes, attribute blocks or buttons, crayons
Digital Math Tool	Counters and Connecting Cubes

**Used for more than one activity.

Teacher Toolbox

Small Group Differentiation

RETEACH

Tools for Instruction
Grade K
- Lesson 9 Sorting in Two Ways

REINFORCE

Math Center Activities
Grade K
- Lesson 9 Sort Objects
- Lesson 9 Look for Attributes

EXTEND

Enrichment Activity
Grade K
- Lesson 9 Sorting Creatures

i-Ready

Independent Learning

PERSONALIZE

i-Ready Lessons*
Grade K
- Sort Objects
- Practice: Sort Objects
- Different
- Same

*We continually update the Interactive Tutorials. Check the Teacher Toolbox for the most up-to-date offerings for this lesson.

Connect to Family, Community, and Language Development

The following activities and instructional supports provide opportunities to foster school, family, and community involvement and partnerships.

Connect to Family

Use the **Family Letter**—which provides background information, math vocabulary, and an activity—to keep families apprised of what their child is learning and to encourage family involvement.

Goal

The goal of the Family Letter is to explain the strategies for sorting objects into different categories based on their characteristics or attributes. Sorting helps children visualize and understand how objects are alike and different and can be organized into groups.

Activity

Look at the *Sorting Objects* activity and adjust it if necessary to connect with children.

Math Talk at Home

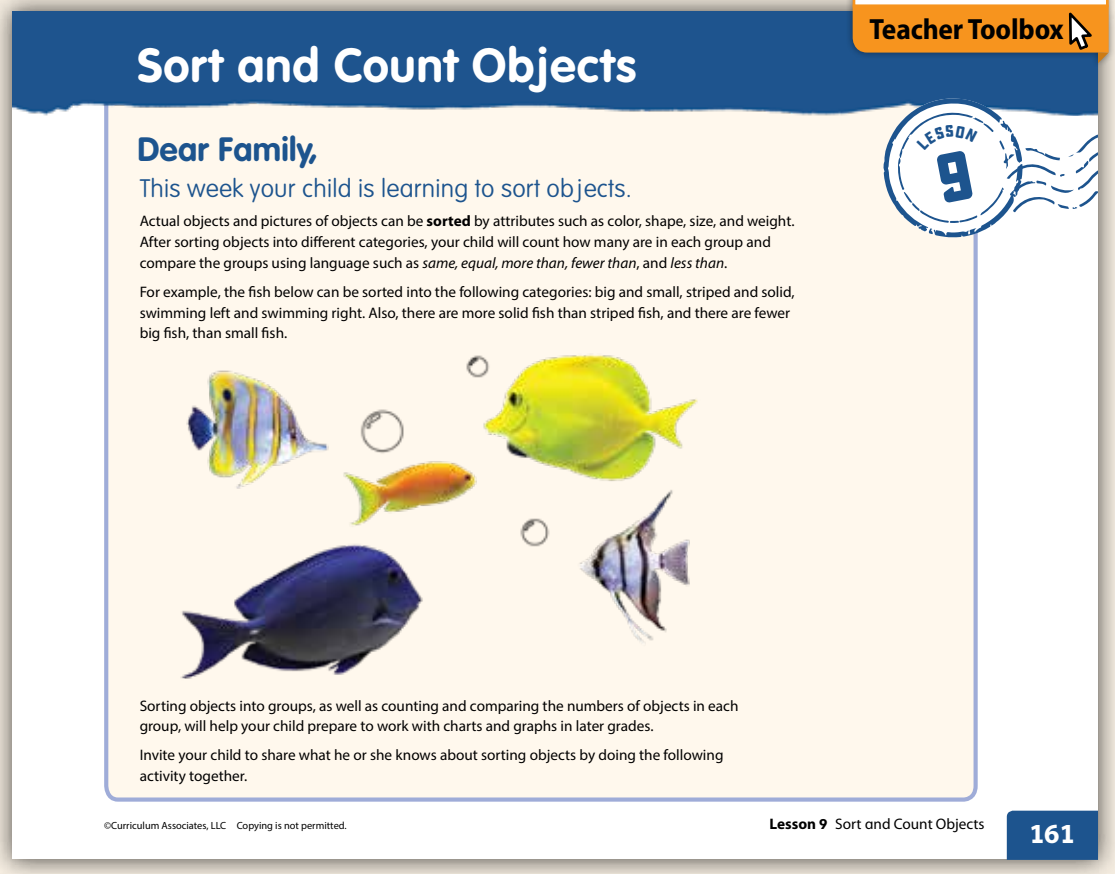
Encourage children to work with a family member to collect 10 small household objects, such as buttons, and sort them by size, shape, color, or other characteristics.

Conversation Starters Below are additional conversation starters children can write in their Family Letter or math journal, with your guidance, to engage family members.

- *How did you sort the objects?*
- *Why did you put these objects in the same group?*
- *How many objects are in each group? Which group has more? Which group has fewer?*
- *What is another way you can sort the objects into two groups?*

Available in Spanish

Teacher Toolbox



Sort and Count Objects

LESSON 9

Dear Family,

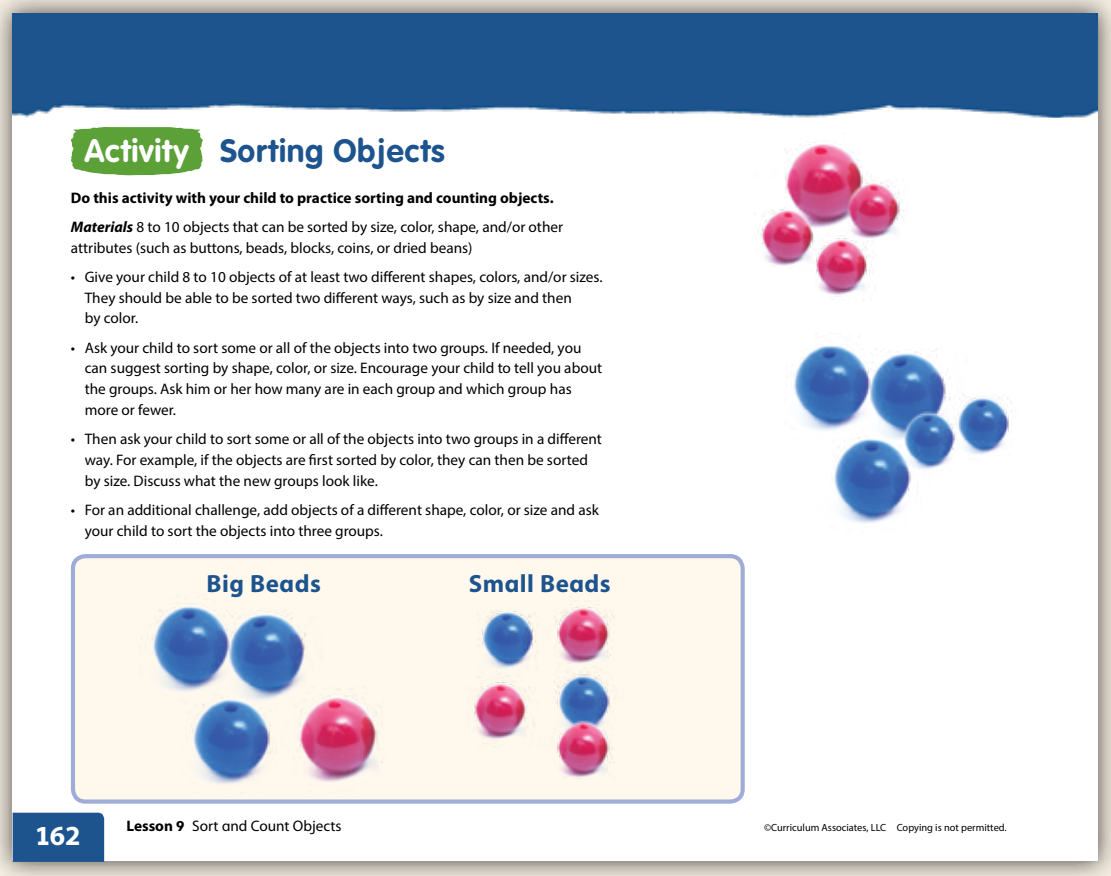
This week your child is learning to sort objects.

Actual objects and pictures of objects can be **sorted** by attributes such as color, shape, size, and weight. After sorting objects into different categories, your child will count how many are in each group and compare the groups using language such as *same, equal, more than, fewer than*, and *less than*.

For example, the fish below can be sorted into the following categories: big and small, striped and solid, swimming left and swimming right. Also, there are more solid fish than striped fish, and there are fewer big fish, than small fish.

Sorting objects into groups, as well as counting and comparing the numbers of objects in each group, will help your child prepare to work with charts and graphs in later grades.

Invite your child to share what he or she knows about sorting objects by doing the following activity together.



Activity Sorting Objects

Do this activity with your child to practice sorting and counting objects.

Materials 8 to 10 objects that can be sorted by size, color, shape, and/or other attributes (such as buttons, beads, blocks, coins, or dried beans)

- Give your child 8 to 10 objects of at least two different shapes, colors, and/or sizes. They should be able to be sorted two different ways, such as by size and then by color.
- Ask your child to sort some or all of the objects into two groups. If needed, you can suggest sorting by shape, color, or size. Encourage your child to tell you about the groups. Ask him or her how many are in each group and which group has more or fewer.
- Then ask your child to sort some or all of the objects into two groups in a different way. For example, if the objects are first sorted by color, they can then be sorted by size. Discuss what the new groups look like.
- For an additional challenge, add objects of a different shape, color, or size and ask your child to sort the objects into three groups.

Connect to Community and Cultural Responsiveness

Use these activities to connect with and leverage the diverse backgrounds and experiences of all children.

Session 1 **Use anytime during the session.**

- Engage children from cultures of rich oral tradition by connecting learning to a song. Introduce sorting and comparing by displaying a group of 4 objects, 3 with similar attributes and 1 that does not share the specified attribute. Sing or play the popular children's song "One of These Things Is Not Like the Others." Ask: *Which of these things is not like the others?* Encourage children to explain how the objects are similar and how they are different.

Session 2 **Use anytime during the session.**

- Encourage children to talk about activities they do that are similar or different from each other. Offer the examples of basketball and soccer. Say: *These are examples of sports. How are these two sports similar? How are they different from each other?* Provide further conversation starters by showing pictures of transportation. Ask: *How is a car different from a plane? What about a boat and train—how are they similar or different? What are these examples of?* Partner children. Have them find objects in the classroom that are similar, and guide them to come up with a generic name (category) for these objects.

Session 3 **Use with the second page of *Additional Practice*.**

- Ask children if they have ever been to the supermarket to buy fruit. Ask them if they have noticed how all the fruits are grouped together. Have children work with a partner and talk about how they can sort fruits. Prompt their discussions by asking: *What color are the fruits? Are some of them big and others small? Are they sweet or sour?* Have children discuss their favorite fruits and other foods made with the fruits they like. Guide the discussion by asking: *What dishes or drinks can you make with the fruits? Do pies have different types of fruit in them? What fruit do you need to make apple juice? What about other types of fruit juices? Can you make jam or jelly with fruits?*

Connect to Language Development

For ELLs, use the Differentiated Instruction chart to plan and prepare for specific activities in every session.

English Language Learners: Differentiated Instruction

Prepare for Session 1
Use with *Connect It*.

Levels 1–3	Levels 2–4	Levels 3–5
Listening/Speaking Use with ***Connect It***. Hold up a group of 5 blue crayons. Ask: *What color are the crayons?* Hold up a group of 6 red crayons in the other hand. Ask: *What color are the crayons?* Ask: *Can we sort or group these crayons by color?* Count the blue crayons aloud with children. Ask: *How many blue crayons are there?* Write 5 on the board. Count the red crayons aloud with children. Ask: *How many red crayons are there?* Write 6 on the board. Have children compare the numbers. Say: *Tell a partner if 6 is more than 5.* Complete the sentence: *6 is more than 5*.	**Listening/Writing** Use with ***Connect It***. Pair children. Provide each pair with 5 blue crayons, a whiteboard, and a marker. Have them count the blue crayons and write 5 on the board. Repeat with a group of 6 red crayons. Ask: *Can you sort or group the crayons by color?* Say: *Tell a partner if there are more blue or red crayons.* Have children complete these sentences and write them in their journal: *There are more red than blue crayons. 6 is more than 5*.	**Speaking/Writing** Use with ***Connect It***. Partner children. Provide each pair with 5 blue crayons and 6 red crayons. Have the pairs choose a way to sort the crayons. Ask: *What are two ways you can sort or group the crayons?* [Possible answers: size, color] Have them tell which category they used to sort the crayons. Provide index cards. Invite children to write down the steps they used to sort the crayons. Ask volunteers to share their answers with the class. Have children write the numbers of each group and compare the groups. Encourage them to use the words *more than* in their answers.

LESSON 9

SESSION 1 Explore

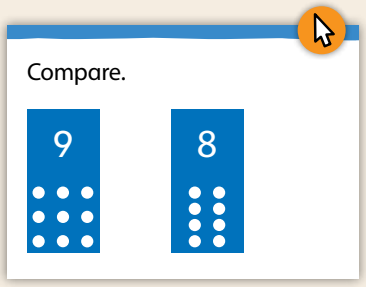
Purpose In this session children sort themselves into two groups and count the total in each group. Children then determine the category used to sort.

Start

Connect to Prior Knowledge

Why Reinforce the comparison of numbers to 10. Practice comparative statements.

How Have children work in pairs to come up with four comparative statements about the two numbers shown. Have each pair of children share a statement.



Possible Solutions 9 dots is more than 8 dots. 8 dots is fewer than 9 dots. 9 is greater than 8. 8 is less than 9.

Try It

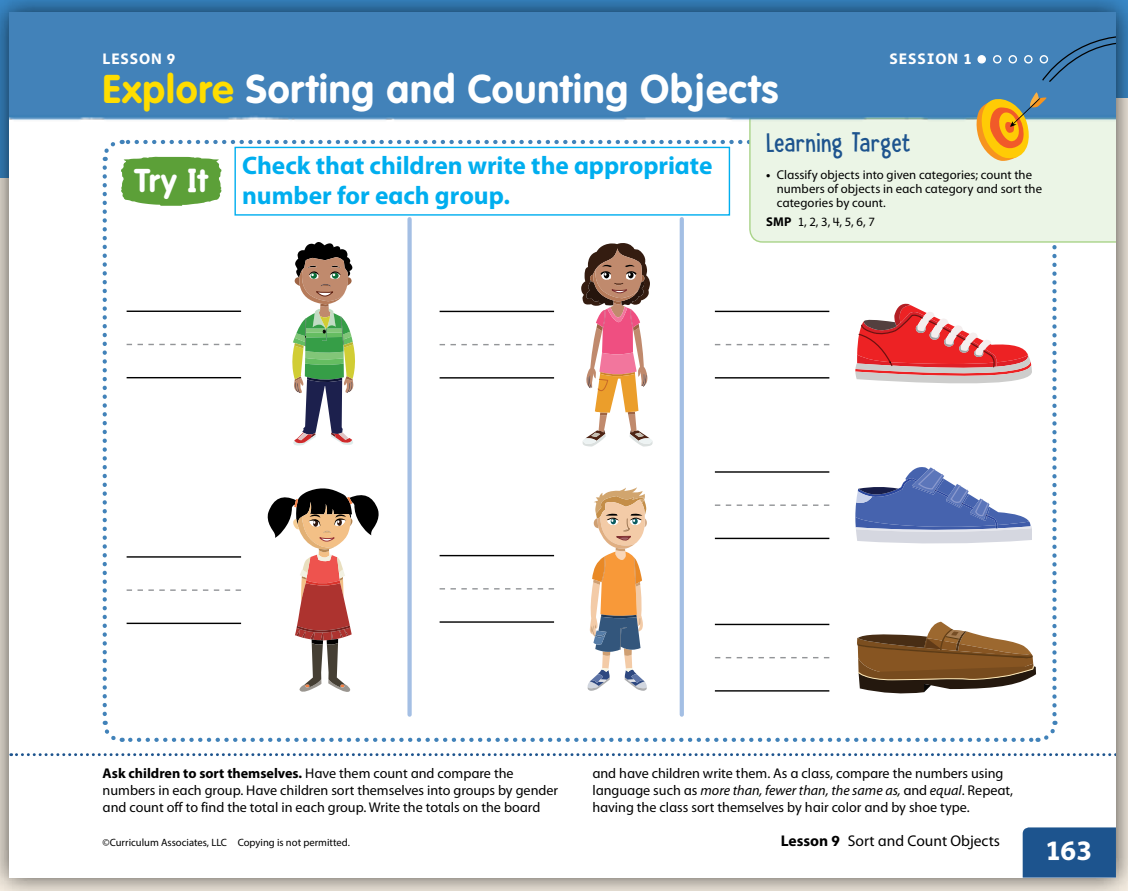
Sort by Gender

Explain that children will be sorting and comparing groups today. Ask: *How many girls are here today? How many boys?* If either group totals more than 10, then select a few tables or one side of the room to sort. Model counting girls and boys, for example: *At this table, there are 2 girls and 1 boy. That table has 1 girl and 1 boy. So far we have 1, 2, 3 girls and how many boys?*

Ask *Why is it helpful to sort into groups first?*

Listen for It is easier to count how many are in the group when they are all together. Sorting into groups makes it easier to compare them.

Have children sort themselves into a group of boys and a group of girls. Select one girl to count how many boys are in the group, and one boy to count how many girls are in the group. Have children record the numbers on the Student Worktext page in the first column.


LESSON 9

Explore Sorting and Counting Objects

SESSION 1 ● ○ ○ ○ ○

Learning Target

- Classify objects into given categories; count the numbers of objects in each category and sort the categories by count.

SMP 1, 2, 3, 4, 5, 6, 7

Try It

Check that children write the appropriate number for each group.

Ask children to sort themselves. Have them count and compare the numbers in each group. Have children sort themselves into groups by gender and count off to find the total in each group. Write the totals on the board and have children write them. As a class, compare the numbers using language such as *more than, fewer than, the same as,* and *equal*. Repeat, having the class sort themselves by hair color and by shoe type.

Lesson 9 Sort and Count Objects 163

Ask *How can you compare these two groups?*

Listen for I can look at the numbers for each group and see which number is greater. That group has more. If the two numbers are the same, then there is an equal number of boys and girls. I know that 7 is less than 9, so 7 girls is less than 9 boys.

Sort in Another Way

Repeat this activity, this time using hair color (dark hair and light hair) or, if there are sensitivity issues in the class, age. Again, adjust who is being sorted so that groups do not go above 10.

Ask *How do you know who goes in which group when you sort?*

Listen for I look at what is being sorted and then decide for each person which group he or she belongs to. Children with dark hair go in the dark-hair group, and children with light hair go in the light-hair group.

Ask *Will the same children end up grouped together? Why or why not?*

Listen for No, some boys will have dark hair and some will have light hair and the same for the girls, so they will be mixed up. I am sorting by something different, so different children will be put together.

Have children count the totals for each group, write the numbers in the second column on the Student Worktext page, and then compare.

Sort a Third Way

Repeat the activity, this time sorting by style of shoe—tie, fastened (buckle or Velcro), slip on.

Ask *How is this sorting the same as or different from the last two times you sorted?*

Listen for There are three groups to sort into, not two. We are sorting into different groups. It is the same because each of us can only belong in one of the groups.

Common Misconception **If** children are struggling with comparing the numbers for three groups, **then** show them how to look at just two of the groups at a time and make a comparative statement for each comparison, rather than just one.

Connect It

Identify Categories

Without describing the categories, invite 3 children with dark-colored tops to make one group and 3 children with light-colored tops to make another. Challenge children to determine the categories for the sort. Invite up 2 more children with dark-colored tops and 3 more children with light-colored tops.

Ask *Which of the two groups does each child belong in and why?*

Listen for I think the children with light-colored tops should go in that group and those with dark-colored tops should go in that group.

Listen also for other categories children may have established: *They have blue eyes, and they have brown eyes. They have short hair, and they have long hair.* If due to school uniforms the children's tops do not differ, then sort by alternative visual categories, such as: sweater on/sweater off, long hair/short hair, etc.

Support Whole Class Discussion

Once the categories are identified, have children count to determine how many are in each group, then color the shirts for that many and write the number. Then ask children to compare.

Ask *How do you know how many shirts to color?*

Listen for I count how many are in the group and color 1 shirt for each child in that group. I counted the number of children in each group and then colored that many shirts.

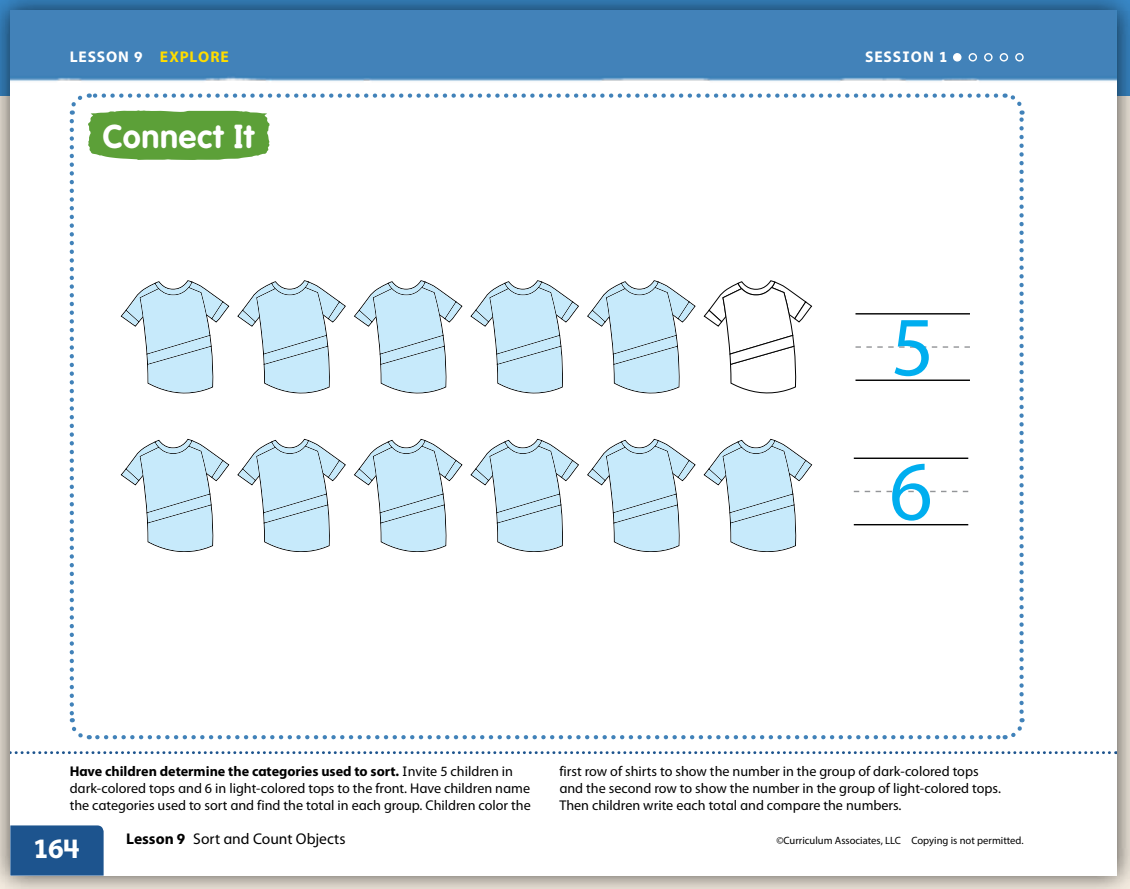
Ask *How do you know what number to write?*

Listen for I counted the number of children in that group and I wrote the last number I counted. I counted the number of shirts I colored for each group and wrote the number.

Ask *How did you compare the two groups?*

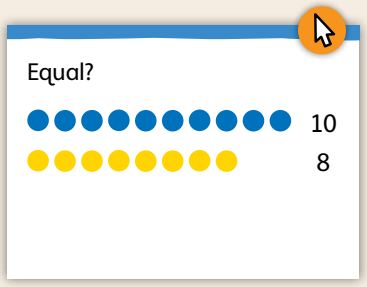
Listen for I looked at the two numbers and I know that 6 is greater than 5, so there must be more in the group of light shirts. I can see that fewer shirts are colored for the dark-shirt group, so there must be fewer children in that group.

Children will spend time learning more about the concept of sorting in Additional Practice.



Close: Exit Ticket

Explain to children that the slide shows children sorted into two teams. Ask children to compare the teams to see if they are equal.

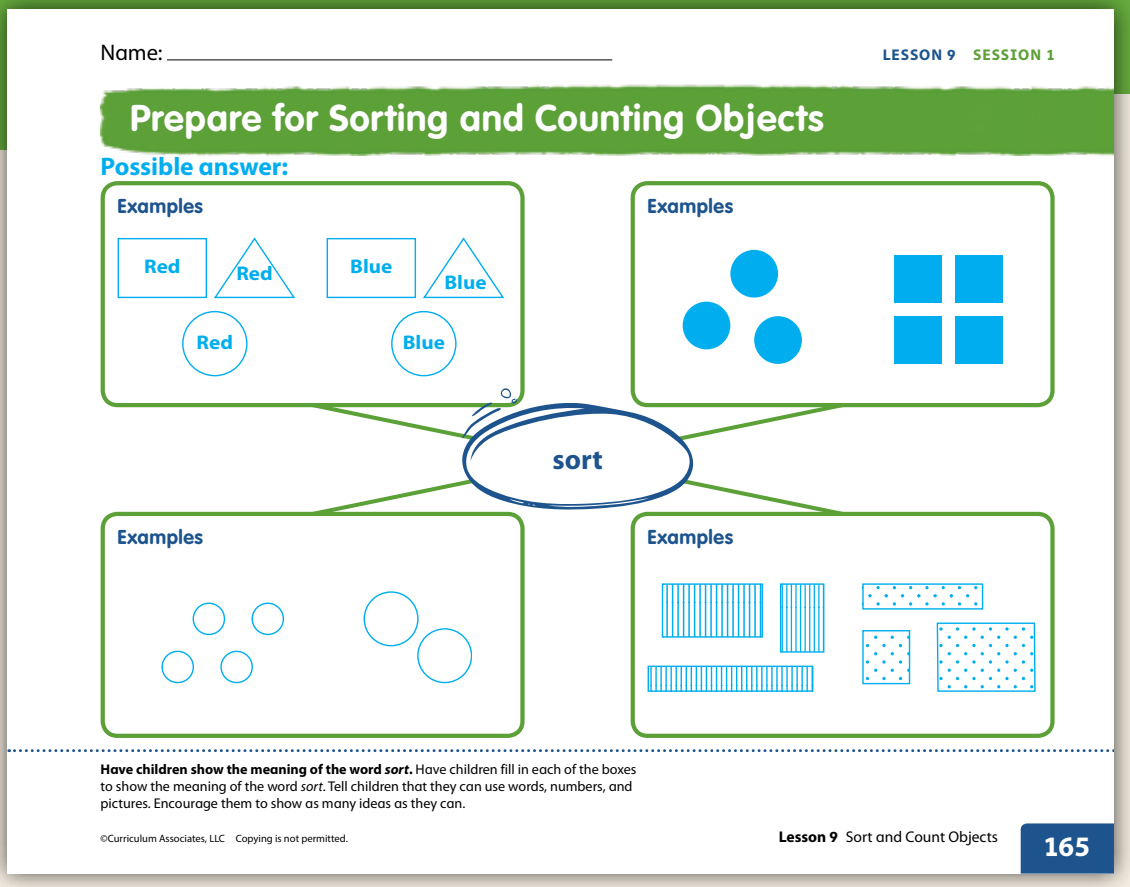


Possible Solutions No, the blue team has 10 children and the yellow team has 8 children. 10 is greater than 8. There are more children on the blue team than the yellow team.

Common Misconception **If** children do not know how to describe the two teams, **then** have them look at the colors that were used to record the sorting. Ask: *What do you think the children could be wearing to show which team they are on?*

Real-World Connection

Encourage children to think about real-world situations where people might sort into two or more groups. Have them think about age groups at summer camps, swim lesson groups, hot school lunch/lunchbox lunch, etc. Discuss why the groups may need to be compared: for example, so that groups are more balanced in number.


Name: _____ LESSON 9 SESSION 1

Prepare for Sorting and Counting Objects

Possible answer:

Examples: Red, Red, Red, Blue, Blue, Blue

Examples

sort

Examples

Examples

Have children show the meaning of the word *sort*. Have children fill in each of the boxes to show the meaning of the word *sort*. Tell children that they can use words, numbers, and pictures. Encourage them to show as many ideas as they can.

Solutions

Support Vocabulary Development

This activity can be used to informally assess children's understanding of sorting and counting objects. Children can show what they know now. You can have them revise their thinking and revisit their responses once they have completed the lesson or unit.

If children need additional support, the following steps provide explicit instructions to guide them.

Have children point to the term *sort* in the graphic organizer. Have them say the word aloud with you. Say: *You use the word* sort *to describe what you do when you place objects into groups.* Hold up 4 red attribute blocks: 2 small ones and 2 large ones. Hold up 4 blue attribute blocks: 2 small ones and 2 large ones. Say: *You can sort these blocks by color.* Model separating the blocks by color. Say: *You can also sort these by size.* Model sorting the blocks by size.

Ask children to draw and write in their graphic organizer to show the meaning of the word sort. You may model an example by drawing a group of four small circles separated from another group of two large circles. Encourage volunteers to share their drawings with the class.

Supplemental Math Vocabulary

- *numbers*
- *equal*

Building Fluency

Compare numbers up to 10.

Materials none, children use their fingers

Hold up a number of fingers and have children hold up more, fewer, or the same number of fingers. Do this while waiting in line or during circle time.

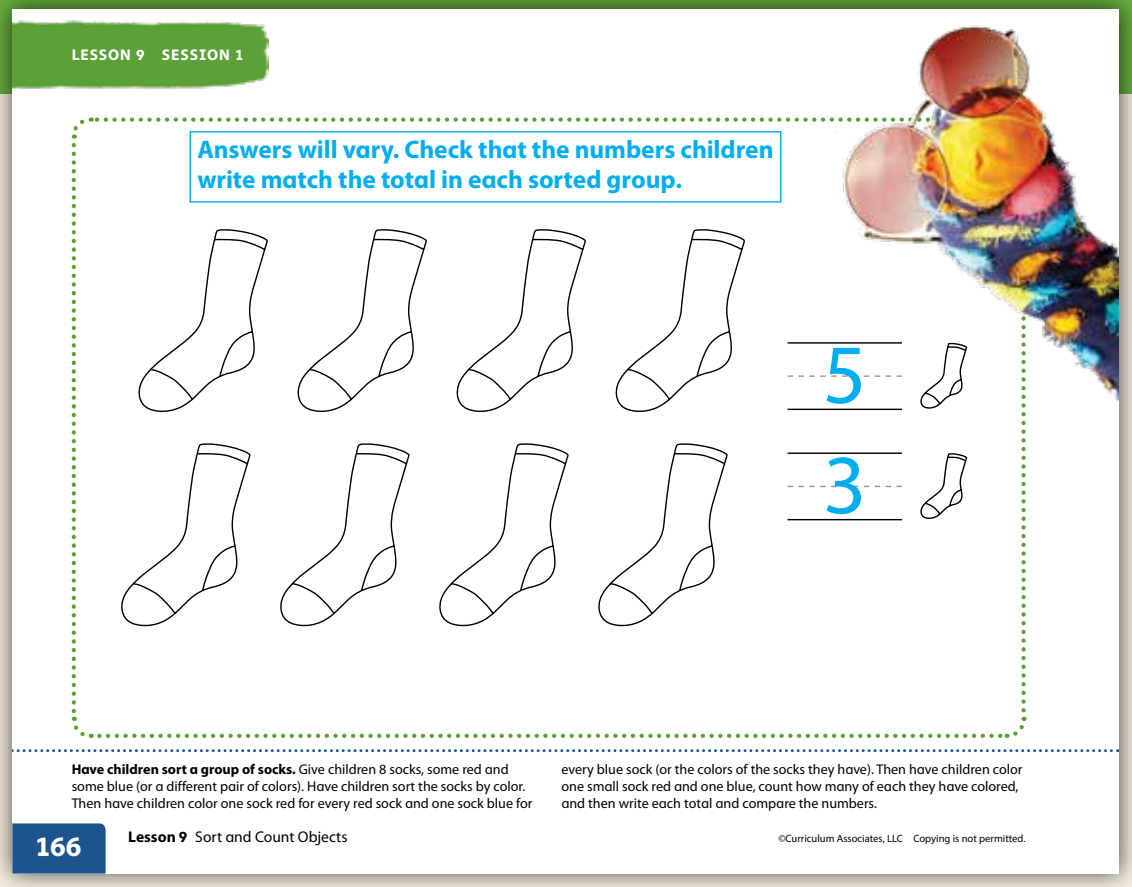
Solution

Assign this problem to provide another look at sorting and counting objects.

This problem is very similar to the problem about sorting children by light- and dark-colored tops. In this problem, children sort a group of socks by color, color the socks on the page to show the number of socks in each color category, and write the number in each group.

Answers will vary. Check that the numbers children write match the total in each sorted group.

Medium



ELL English Language Learners: Differentiated Instruction

Prepare for Session 2
Use with *Connect It*.

Levels 1–3

Listening/Speaking Have children point to the solid or striped blue fish in the ***Connect It*** picture as you choral count them. Repeat with the yellow and the orange fish. Ask: *How many blue fish are there?* [6] Repeat for the yellow and orange fish. Ask: *Can you sort these fish by color? Tell me how. Does the blue group have more fish than the yellow group?*

Choral count the fish swimming toward the plant. Trace with your finger to show the direction as you ask: *How many fish are swimming toward the plant?* Ask children to circle the fish swimming toward the plant to check their answers.

Levels 2–4

Listening/Speaking Have children point to the solid or striped blue fish in the ***Connect It*** picture as you choral count them. Repeat for the yellow and the orange fish. Ask: *What colors can you use to sort the fish? Are there more blue fish or yellow fish?* [blue] Guide children to use the phrase *more than* to answer.

Partner children. Have them find the number of blue fish swimming toward the plant and circle each one. Trace with your finger to show the direction as needed. Repeat for the yellow and orange fish. Ask: *Which group has more fish swimming toward the plant? What did you do to find the answer? Tell your partner.*

Levels 3–5

Listening/Speaking Partner children up to sort fish in the ***Connect It*** picture. Have partners talk about how they can sort the fish by color and by size. Ask: *What can you do to know if there are more blue, yellow, or orange fish? Can you do the same to know how many fish are swimming toward the plant?* Ask children to show you the fish that are swimming toward the plant.

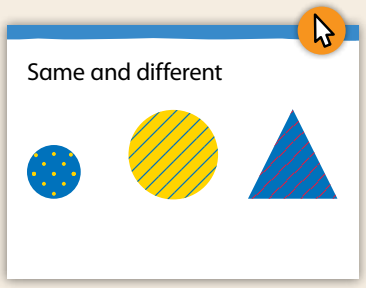
Purpose In this session children sort objects based on color, size, or feature.

Start

Connect to Prior Knowledge

Why Practice finding similarities and differences that can then be applied to sorting and classifying.

How Ask children to look at the shapes. Have them list what they can see that is the same and what is different about the shapes. Tell children that things that are the same can be the same about just two of the shapes.



Possible Solutions The blue shapes are the same color, the yellow shape is a different color. Two shapes have stripes, the other has spots. Two shapes are blue and yellow, the other shape is blue and red. Two shapes are round, the other shape is pointy. Two shapes are big, one is small.

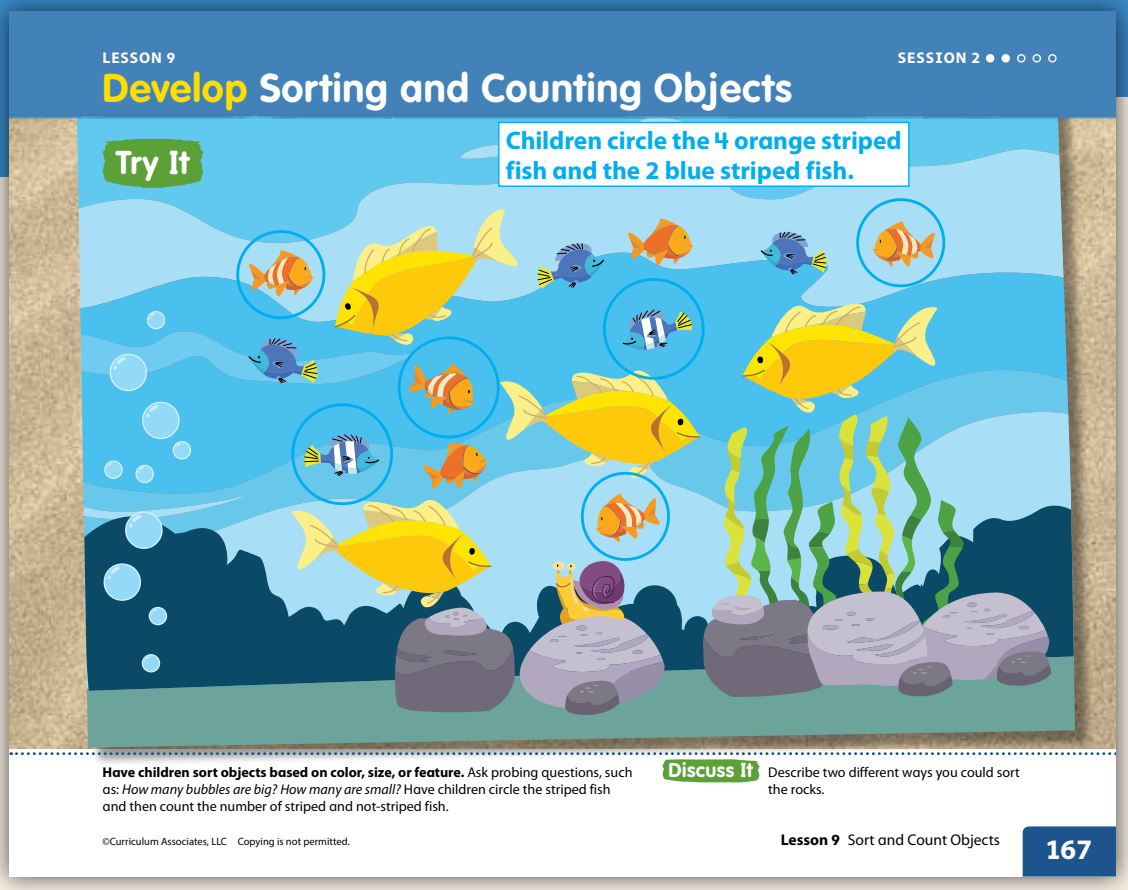
Develop Language

Why Develop understanding of the term *rule*.

How Activate background knowledge of the term by asking children if they know the meaning of *rule*. Relate the term to school rules, procedures to follow that help the school run smoothly. Say: *A rule says how things should be done.* Ask children to look at the ***Try It*** picture and point to the fish that have stripes. Say: *Let's make a rule for these fish. We can make a category using the rule: sort by fish that have stripes.* Invite children to state another rule they can use to sort the fish.

Try It

Present the scene and engage children by having them identify groups they see in the picture, describing how the objects are alike. Then have them count how many in each category.



Ask *How many bubbles are big? How many are small? Are there more big bubbles or more small bubbles?*

Have children circle all the striped fish and then count the number of striped fish and the number of not-striped fish.

Discuss It

Support Partner Discussion

Have children talk in pairs about the groups they found in the picture and any comparisons they made.

Support as needed with questions such as:

- *Did your partner find any of the same groups as you?*
- *Did your partner mention any new groups to you?*
- *Which of your partner's comparisons did you find interesting?*

Common Misconception **If** children are able to sort but not able to label each set, **then** discuss with children what is the same and what is different and prompt them to think about and create a label for each set of items sorted.

Select and Sequence Solutions

Select children to present many different solutions. Choose children who identified:

- 5 blue fish, 10 not blue fish
- 3 light green pieces of seaweed, 5 dark green pieces of seaweed
- 8 fish swimming away from the bubbles, 7 fish swimming toward the bubbles
- 4 big bubbles, 6 little bubbles, more little bubbles than big

End with more creative groups and their comparisons.

Support Whole Class Discussion

Compare and connect children's solutions by having them share the groups they sorted and any comparisons they made.

Record and discuss the different groups sorted. Look for multiple ways to sort the same objects.

Ask *What are different ways you could sort the rocks?*

Listen for Big and small. Light gray, dark gray. Rocks on the ground, rocks on rocks.

Ask *How could you sort and compare the fish?*

Listen for Big and small. Striped and not striped. Swimming toward the seaweed, swimming away from the seaweed. Blue, orange, yellow.

Connect It

Materials For each child: 10 counters

Support Whole Class Discussion

Explain to children they will sort the fish in different ways. They can use counters to place on the fish to help them count how many in different groups. For example, place a counter on all the small fish and then count the counters to find how many small fish in all.

Have children find how many big fish and then how many small fish. Point to the plant. Ask: *How many fish are swimming toward the plant?* Have children circle them and count.

Ask *How do you find out which group has more?*

Listen for I count how many are in each group I have sorted, and then I compare the numbers and see which is greater. I count each group and see which group has more.

Ask *What other ways can you sort the fish?*

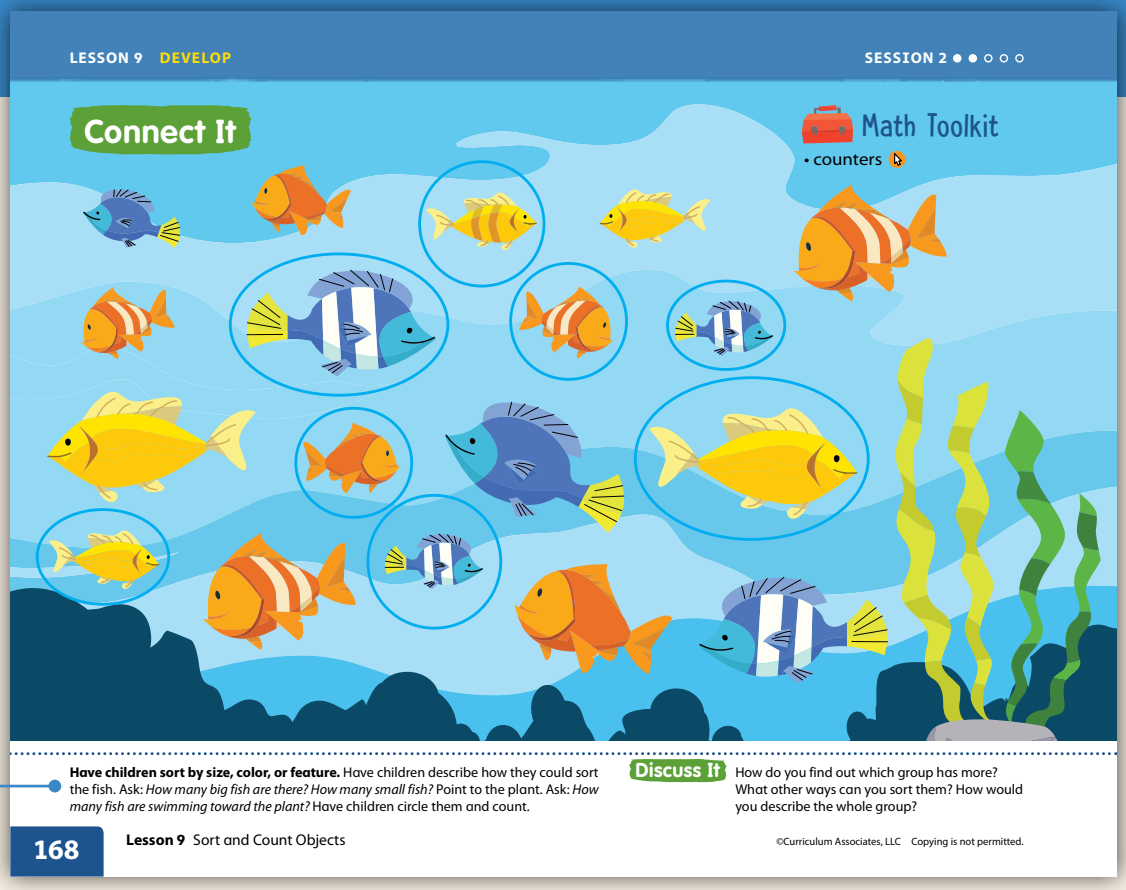
Listen for Color. Striped, not striped. Small striped, big striped. Big blue, little blue.

Ask *How would you describe the whole group?*

Listen for Fish. Swimming fish. Fish in the water. Happy fish.

Ask *What different groups could a little plain blue fish belong to?*

Listen for Fish. Blue fish. Not-striped fish. Little fish.



Deepen Understanding

Sorting

SMP 7 Look for structure.

After discussing sorting the fish, children will benefit from further thought about categories.

To determine categories, they look for patterns such as an attribute each object shares. To practice, group 3 or 4 items and ask children to identify how they are alike.

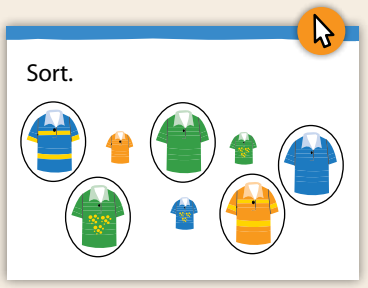
Ask *What could you look for to figure out what the category of the group is?*

Listen for The color or shape of the objects. The patterns. What the object is doing or what it is for.

Generalize Draw the following fish on the board and say: *If a sorted group has a small blue spotted fish, a large red spotted fish, and a small red spotted fish, which fish belongs to the group—a blue striped fish or a green spotted fish?* To determine the category of the sorted group, children must identify an attribute that is the same.

Close: Exit Ticket

Have children look at the shirts that have been circled. Have them determine what category has been used to sort them.



Solution Large shirts

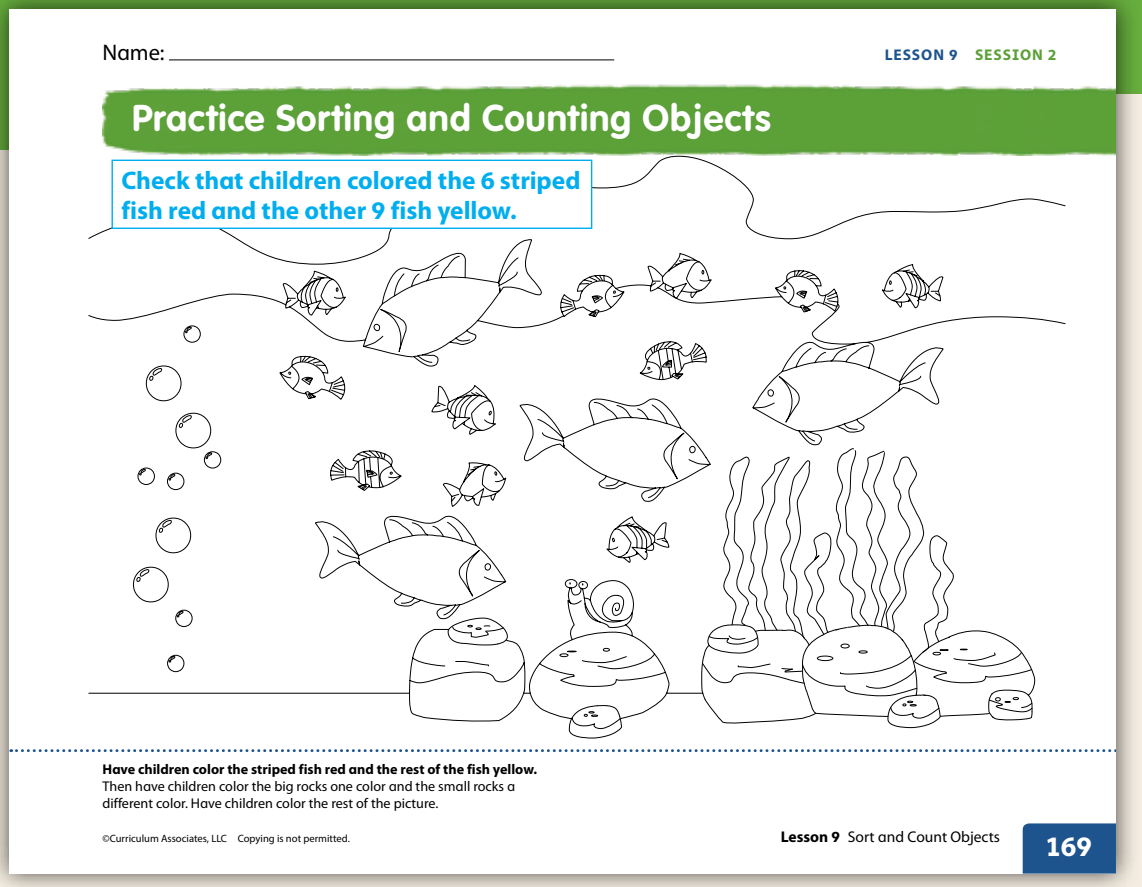
Common Misconception **If** children are miscounting due to only counting a smaller group from a large group of objects, **then** practice one-to-one correspondence and encourage marking each object in some way, either with a pencil mark or by covering it with a counter.

SESSION 2 Additional Practice

Solutions

Children's coloring should show the following:

- 6 striped fish red
- the other 9 fish yellow



Fluency Practice

Compare numbers to 10.

Materials For each pair: 2 copies of Activity Sheet *Number Cards 0 to 10: Small*

- Shuffle the two sets of number cards together and place them facedown in a pile in front of the pair.
- Each child turns over a card.
- Both children compare their numbers.
- The child who turned over the greater number then gives thumbs up. The child who turned over the lesser number gives thumbs down. If the numbers are equal, both children give thumbs in the middle.
- Repeat until all the cards have been turned over.

Find one more than a number to 9.

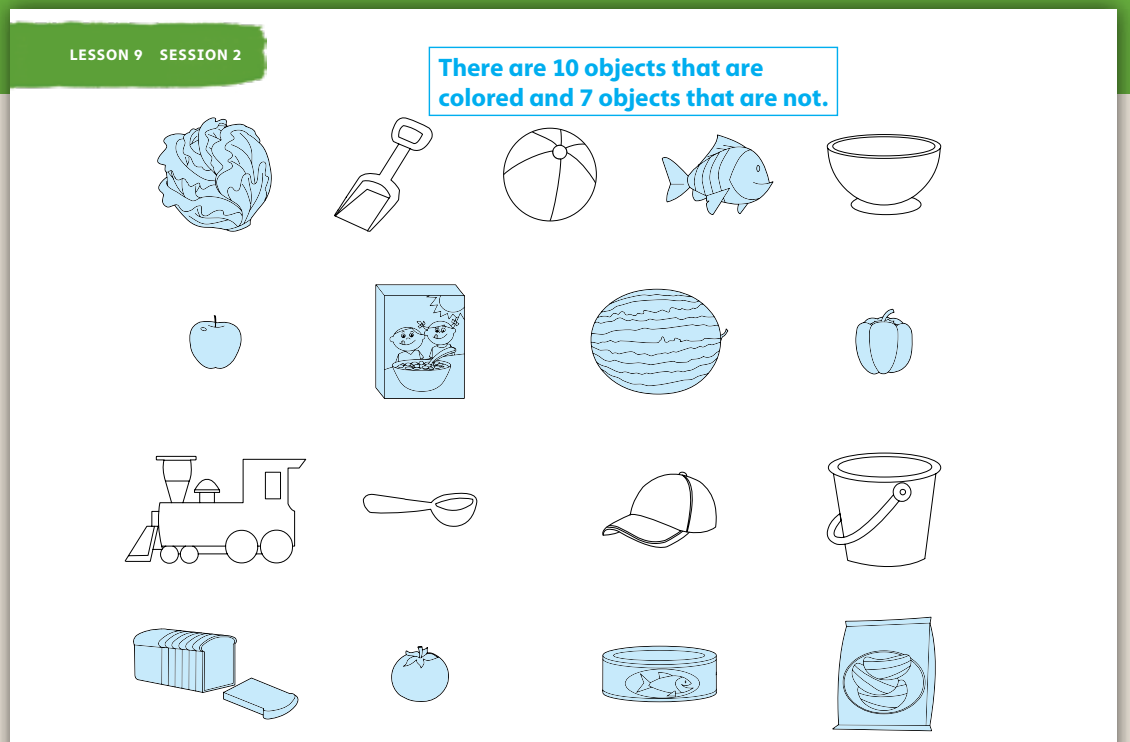
Materials For each pair: Activity Sheet *Number Cards 0 to 10: Small*

- Use the number cards for 0–9 only. Shuffle the cards and place them facedown between the pair.
- One partner turns over the top card.
- The other partner says the number that is 1 more.
- Swap roles and repeat until all of the cards have been turned over.

Solutions

Children sort objects into those that are food and those that are not. They color the group of objects that are food.

- 10 food objects colored, other 7 objects not colored
  Medium



ELL English Language Learners: Differentiated Instruction

Prepare for Session 3
Use with *Try It*.

Levels 1–3

Listening/Speaking Tell children that they are going to sort the objects in the ***Try It*** picture into two groups. Have children use a crayon to circle the balls. Count them aloud together. Draw a T-chart on the board. Write the heading *Balls* on one side. Say: *The first group is balls*. Invite a volunteer to write the number 5 on the board. Have children use another color to circle the flowers and count them aloud. Say: *The second group is flowers.* Write the heading *Flowers* on the chart. Invite a volunteer to write the number 2 on the board.

Guide children to use the words *fewer* and *more* to describe the groups.

Levels 2–4

Listening/Speaking Tell children that they are going to sort the objects in the ***Try It*** picture into two groups. Have children use a crayon to circle the balls and count them. Then have them use another color to circle the flowers and count them. Draw a T-chart and invite volunteers to write the headings *Balls* and *Flowers* and the numbers 5 and 2 in the chart. Say: *Let us compare. Which group has fewer objects?* Provide the sentence frame to help them: *There are fewer* ***flowers*** *than* ***balls*** .

Levels 3–5

Speaking/Listening Pair children up to sort objects in the ***Try It*** picture. Have partners tell a rule to sort the objects. Provide a sentence starter: *We can sort them by _____*. Ask: *How did you sort the objects? How many groups did you make? How can you find which group has more? Can you do the same to know which group has fewer?* Encourage children to use the words *more* and *fewer* in their answers.

Have partners talk about other rules they can use to sort the objects. Provide support with vocabulary as needed.

LESSON 9

SESSION 3 Develop

Purpose In this session children sort pictures of objects into two groups. They then identify an object that does not belong in a group and give the reason why.

Start

Connect to Prior Knowledge

Why Reinforce which numbers are greater and which are less.

How Have children look at the numbers next to the flowers. Have them describe what they see. Then have children compare the number shown next to the pink flower and the number next to the purple flower. *Which color flower is there a greater number of? How do you know?*

Compare.

9

7

Solution The pink flowers. There are 9 pink flowers and 7 purple flowers. 9 is greater than 7, so there are more pink flowers than purple flowers.

Develop Language

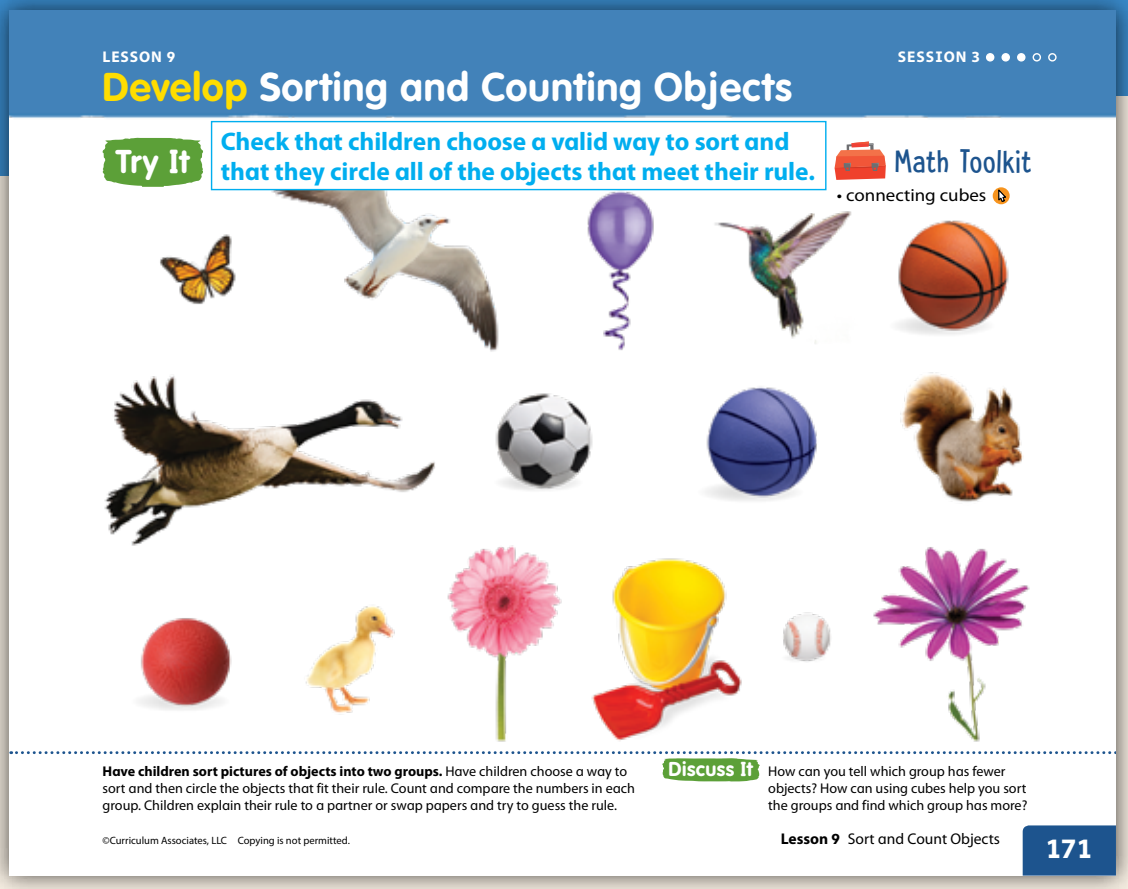
Why Develop understanding of the phrase *sort by*.

How Use the phrase *sort by* to model sorting common classroom objects, such as a group of 4 yellow pencils and 1 blue pencil. Say: *I say* sort by *when I make groups of objects. Look at these pencils. I will sort by color.* Sort into groups of yellow and blue. Display other groups of objects for sorting. Say: *What is the same about all the objects in each group? How did I sort the objects?* Provide a sentence frame: *You sorted by* _____.

Try It

Materials For each child: 20 connecting cubes (10 each of two different colors)

Explain to children that they are going to choose a way to sort, circle the objects that fit their rule, and then count and compare the numbers of each group.


LESSON 9

SESSION 3 ● ● ● ○ ○

Develop Sorting and Counting Objects

Try It

Check that children choose a valid way to sort and that they circle all of the objects that meet their rule.

Math Toolkit

• connecting cubes

Have children sort pictures of objects into two groups. Have children choose a way to sort and then circle the objects that fit their rule. Count and compare the numbers in each group. Children explain their rule to a partner or swap papers and try to guess the rule.

Discuss It

How can you tell which group has fewer objects? How can using cubes help you sort the groups and find which group has more?

Support Partner Discussion

Have children swap their papers and figure out their partner's rule. If they are unable to figure out the rule, have their partner explain it. Support as needed with questions such as:

- *Is there another way of looking at that?*
- *What questions do you have?*

Common Misconception **If** children cannot think of a rule to sort by, **then** have them think about what the objects are doing, what type of object they are, whether they can do anything with the object, etc.

Select and Sequence Solutions

Select children to present ways of sorting and comparing. Choose children who have identified:

- flying/not flying
- balls/not balls—5 balls, 10 not balls
- nature/not nature—8 objects from nature, 7 not from nature. 8 is greater than 7. More are from nature.

Discuss It

Support Whole Class Discussion

Compare how children found the category used to sort the objects into two groups.

Ask *How did you figure out your partner's rule?*

Listen for I looked at what was the same about the objects that were circled. I looked at what the objects that were circled can do or what they are for. I looked at what type of object was circled, like a ball or a bird.

Then discuss how they compared those groups.

Ask *How can you tell which group has fewer?*

Listen for I can circle one group and count them and then count the other group. The group with the number that is less has fewer.

Ask *How can using cubes help you sort the groups and find which group has more?*

Listen for I can place red cubes on one group and blue cubes on the other group. Then I count how many of each color. The greater number tells the group that has more.

Hands-On Activity

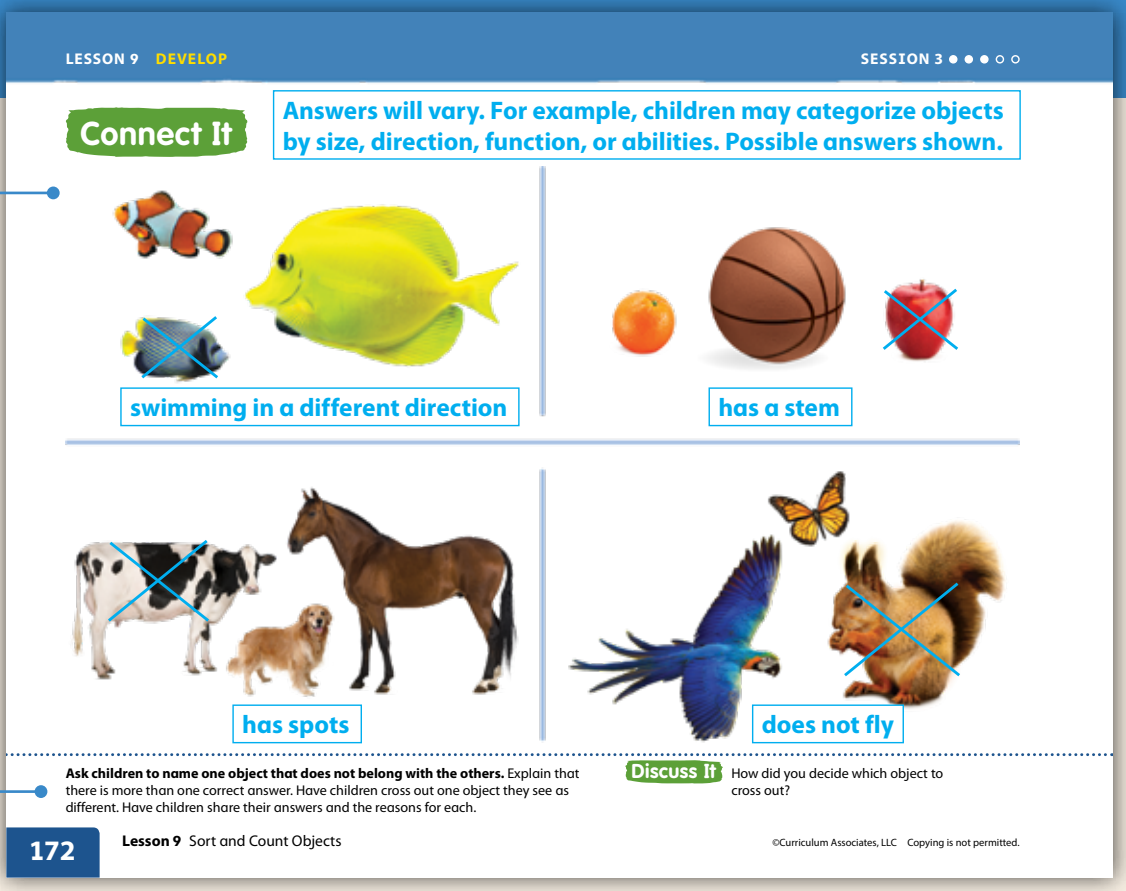
Identify objects that do not belong and explain why.

If . . . *children are struggling to choose a solution from many possible answers so they just guess*

Then . . . *use the activity below to practice explaining reasons for sorting.*

Materials For each pair: 1 penny, 1 nickel, 1 dime

- Place the coins in front of each pair. Ensure at least one of the coins is tails up and at least one of the coins is heads up.
- Have children choose one coin that does not belong.
- Have them tell their partner why they think that coin does not belong.
- Have them share if they chose different coins and their reasons.



Connect It

Support Whole Class Discussion

For each problem, ask children to identify one object that does not belong with the others. Have them mark that object with an X. When all four problems have been completed, have several children share their answers and thinking. Ensure children are able to give a reason for each of their answers.

Ask *Do you think there is just one possible answer for each problem? Why or why not?*

Listen for No, the groups can be sorted in different ways. You can sort by color or by what the objects have or what they do. Each different way of sorting may make a different object not belong.

Ask *How did you decide which object to cross out?*

Listen for I looked at what the objects looked like and found something that was different in one of the objects. I thought about what was the same for two of the objects but not the other one.

Deepen Understanding

Reasoning

SMP 6 Attend to precision.

In explaining their reasoning for choosing one object over another to cross out, children are communicating precisely. When discussing the problems, encourage them to provide detail using prompts, such as:

Ask *How can you describe the object you crossed out?*

Listen for The fish I crossed out is big and yellow and has no stripes. The ball I crossed out can be played with, cannot be eaten, is brown, is big, and is bouncy.

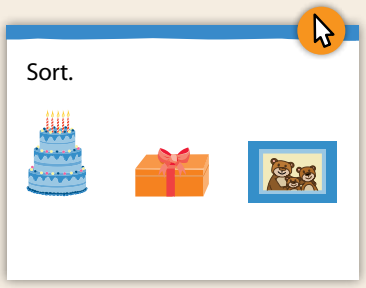
Ask *How is the object you crossed out different from the others?*

Listen for It does not have stripes. It cannot be eaten. It is not brown. It is not striped.

Generalize Prompt children to identify that there is more than one way to sort the groups of objects, but the way that has been chosen can be explained using precise details.

Close: Exit Ticket

Have children look at the three pictures and say what each picture is. Then have them think of which picture could be different from the others. Have children take turns sharing their reasons.



Possible Solutions The picture frame because the other two are for a party. The gift because it is not blue. The cake because you cannot eat the other two.

Common Misconception **If** children are unable to give a reasonable explanation for why they have chosen that object, **then** have them note the attributes of the other two objects that are similar.

Solutions

For each problem, children:

- find an object that does not belong
- cross out the object they see as different
- share a reason for choosing that object

Example

Balloon: cannot eat it
Basic

Problems

Possible solutions:

- Slippers: worn indoors
  Challenge
- Bird: not an insect
  Medium
- Spotted dog: has spots
  Medium


Name: _____ LESSON 9 SESSION 3

Practice Sorting and Counting Objects

Example

Answers will vary. Children may categorize the objects in different ways. Possible answers shown.

worn indoors

not an insect

has spots

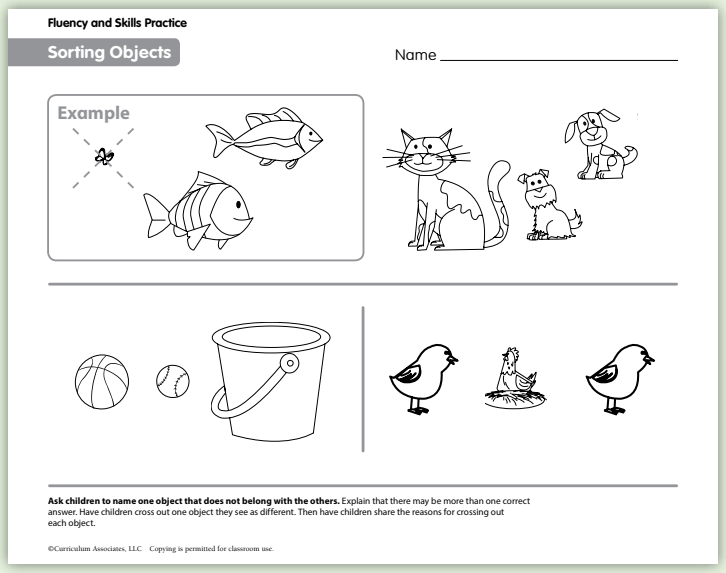
Ask children to name one object that does not belong with the others. Explain that there may be more than one correct answer. Have children cross out one object they see as different. Then have children share the reasons for crossing out each object.

Fluency & Skills Practice

Teacher Toolbox

Assign *Sorting Objects*

In this activity children practice identifying one object in a group that does not belong with the others and sorting groups. Children may apply similar reasoning in real-world situations. For example, children may recognize that a toy car does not belong in a bin that holds different kinds of balls, or they may understand that they will not see lions at an aquarium because lions do not live in water.


Fluency and Skills Practice

Sorting Objects

Name _____

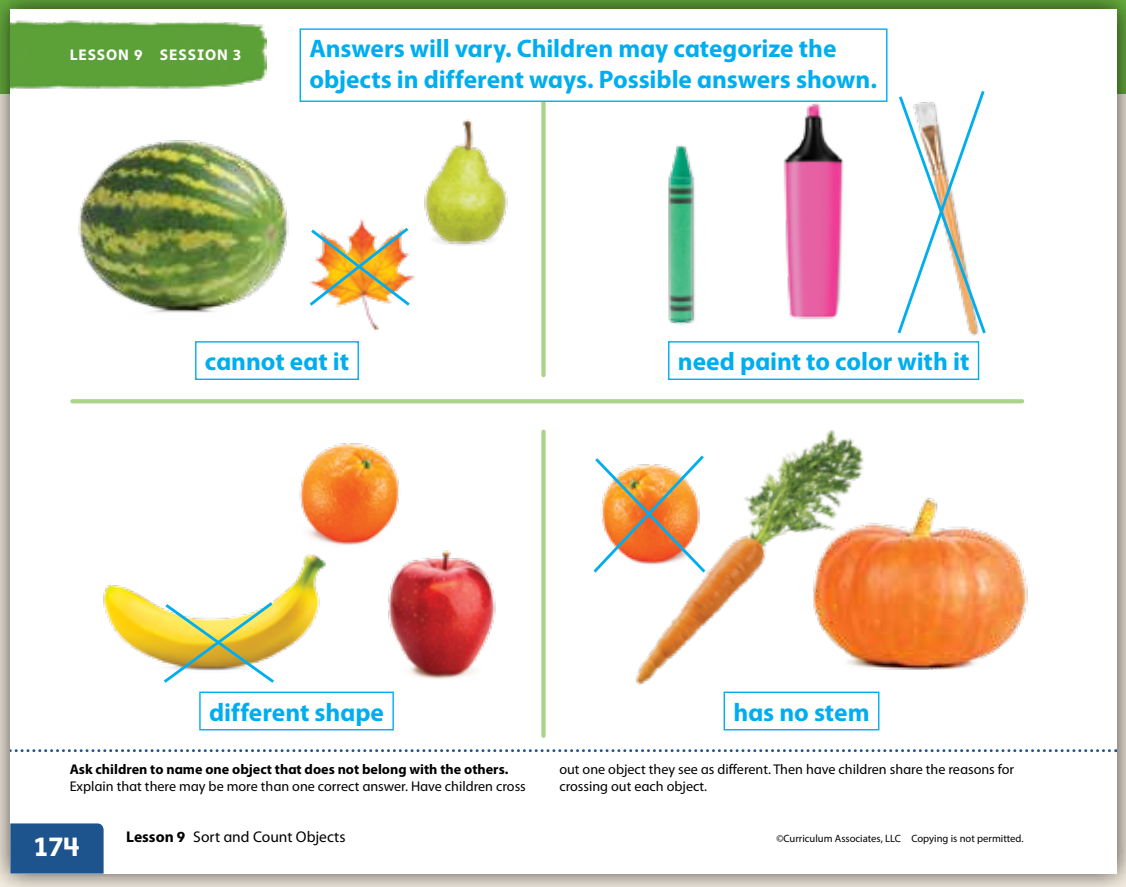
Example

Ask children to name one object that does not belong with the others. Explain that there may be more than one correct answer. Have children cross out one object they see as different. Then have children share the reasons for crossing out each object.

Solutions

Possible solutions:

- Leaf: cannot eat it
  Medium
- Paintbrush: need paint to color with it
  Challenge
- Banana: different shape
  Medium
- Orange: has no stem
  Medium



ELL English Language Learners: Differentiated Instruction

Prepare for Session 4
Use with *Apply It*.

Levels 1–3

Listening/Speaking Provide children with 5 red attribute blocks and 3 yellow attribute blocks for the ***Apply It*** activity. Ask: *Can you sort the blocks by color?* Have children place the group of red blocks on one side and the yellow ones on the other side. Ask: *Can you count to know which group has fewer?* Count each group aloud with children. Provide a sentence frame for children to complete: *There are fewer* ***yellow blocks*** *than* ***red blocks***. *How do you know which group has more?* Have children show you their strategy and complete the sentence: *There are more* ***red blocks*** *than* ***yellow blocks***.

Levels 2–4

Speaking/Writing Provide children with 5 red attribute blocks and 3 yellow attribute blocks for the ***Apply It*** activity. Have children sort the blocks by color and place them on each side. Ask: *What can you do to find how many blocks are on each side?* Have children count the blocks on each side. Ask children to compare the groups. Say: *Tell a partner which group has fewer blocks. Complete the sentence and write it in your journal: The group of* ***yellow*** *has fewer.*

Levels 3–5

Listening/Speaking Partner children for the ***Apply It*** activity. Give children some red attribute blocks and fewer yellow attribute blocks. Have one partner place the group of red blocks on one side and have the other partner place the yellow blocks on the other side. Have partners take turns counting the blocks and comparing the groups. Sort the blocks by size. Ask: *What is similar about the blocks in each group? How did you sort the blocks?*

LESSON 9

SESSION 4 Refine

Purpose In this session children practice sorting and counting objects. They sort into two groups, compare the groups, and say which has fewer.

Start

Develop Fluency

Materials For each pair: 1 number cube labeled 5–10

Why Reinforce numbers that are greater and numbers that are less.

How Children identify the number on the slide as 7. Then partners take turns to roll the number cube. Whichever number the number cube lands on, children must say if it is greater than, less than, or equal to the number 7. Repeat until all numbers have been rolled at least once.

Compare.

7

Solution 5 and 6 are less than 7. 7 is equal to 7. 8, 9, and 10 are greater than 7.

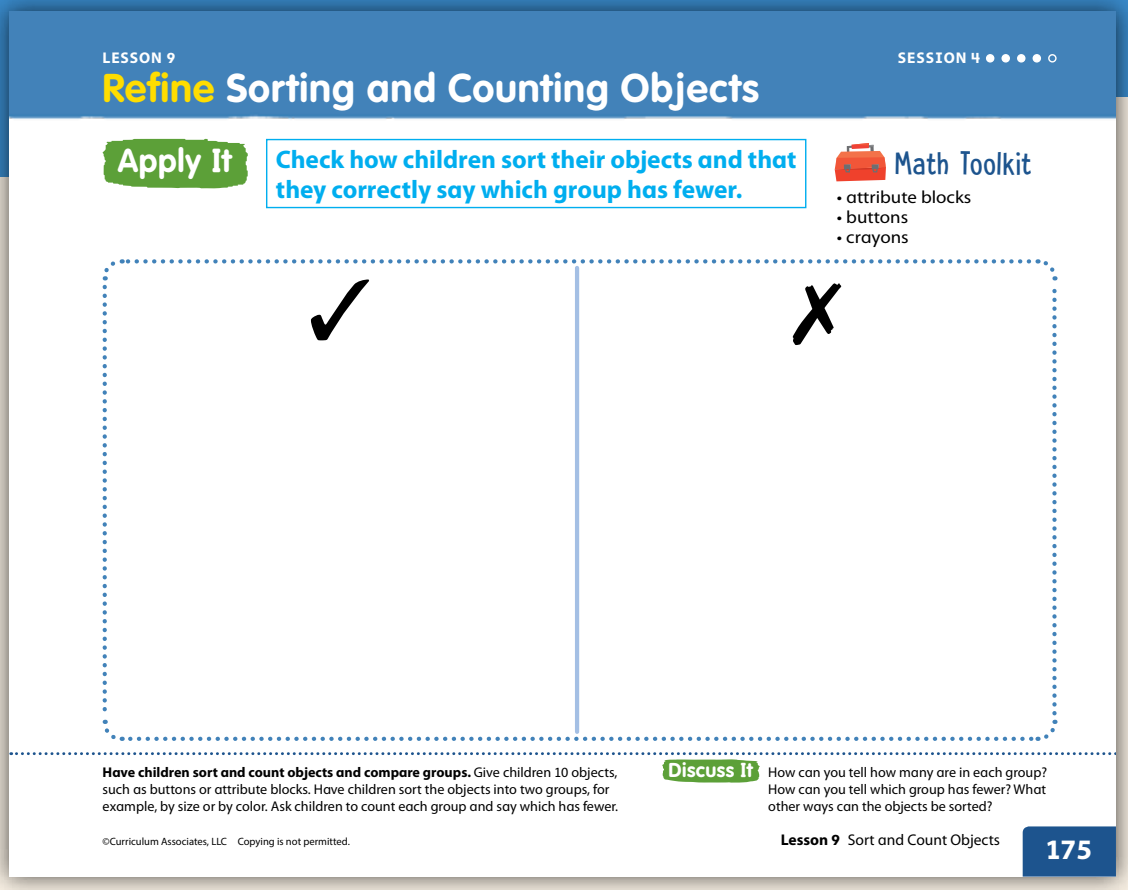
Apply It

Materials For each child: 2 crayons (1 blue, 1 green); For each pair: 10 objects such as buttons or attribute blocks

For the first page, explain to children that they will sort some objects into two groups and show the groups on their workmat. Then they will count the objects in each group and say which group has fewer.

Give each pair of children 10 objects. Ask them to look closely at the objects to think about how they are the same and different.

Have children sort the objects into two groups, for example by size or by color. Explain that the space with the check mark on the workmat is for the objects that have that attribute (such as *big* or *red*) and the space with the X is for the objects that do not have that attribute.


LESSON 9

SESSION 4 ●●●●●○

Refine Sorting and Counting Objects

Apply It

Check how children sort their objects and that they correctly say which group has fewer.

Math Toolkit

- attribute blocks
- buttons
- crayons

✓

✗

Have children sort and count objects and compare groups. Give children 10 objects, such as buttons or attribute blocks. Have children sort the objects into two groups, for example, by size or by color. Ask children to count each group and say which has fewer.

Discuss It How can you tell how many are in each group? How can you tell which group has fewer? What other ways can the objects be sorted?

Lesson 9 Sort and Count Objects 175

Discuss It

Support Whole Class Discussion

After children have sorted their objects, discuss their work.

Ask *How did you know where to place the objects?*

Listen for I looked at the objects to see which were (red). If they are (red), they went in this group, and if they are not, they went in the other group.

When they have sorted the objects, children should then count the number in each group to compare and find which group has fewer objects.

Ask *How can you tell how many are in each group?*

Listen for Children should discuss different ways they counted the objects, such as moving each one as they count, touching each one as they count, writing numbers, or making other marks.

Ask *How can you tell which group has fewer?*

Listen for I look at how many are in each group and see which number is less. I can compare the numbers in each group.

Ask *What other ways can the objects be sorted?*

Listen for Children can suggest many different ways, including shape, size, color, pattern, or number of holes.

For problems on the second page, tell children they will continue to sort objects.

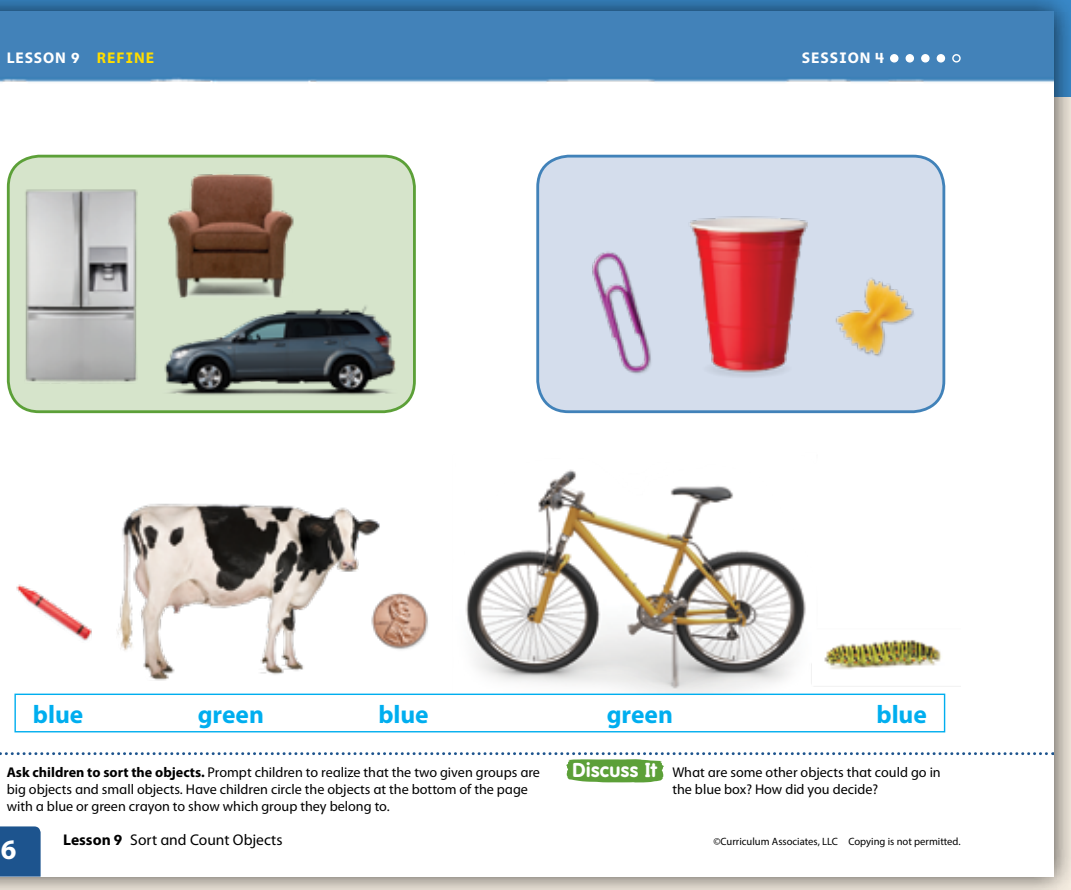
Have children circle the objects at the bottom of the page with a blue or green crayon to show which group they belong to.

Support Whole Class Discussion

Discuss how the objects are sorted (large and small).

Ask *What are some other objects that could go in the blue box? How do you decide?*

Listen for Children should suggest any small object, such as a button. They may think about objects that are easy to hold or objects similar to those already in the blue box.

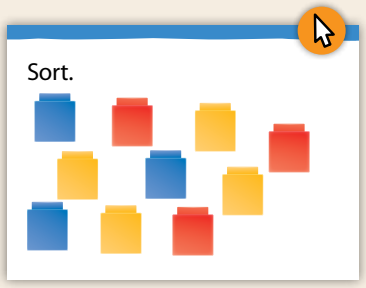


Close: Exit Ticket

Check for Understanding

Materials For each child: 10 connecting cubes (3 red, 3 blue, 4 yellow); For remediation: 3 index cards, sets of objects with 2 or 3 sortable attributes (e.g., crayons)

Ask children to sort 10 cubes by color, tell how many are in each group, and then identify which groups have an equal number.



Solution 3 red, 3 blue, 4 yellow. The red and blue groups have an equal number.

Error Alert For children who are still struggling, use the chart to the right to guide remediation.

After providing remediation, check children's understanding by asking them to sort a different set of objects with 2 or 3 attributes (e.g., crayons of different colors or sizes). Allow them to use cards or markers as visual reminders of what belongs in each group.

Error Alert

If the error is . . .	*Children may . . .*	*To support understanding . . .*
not completing the sorting task	have difficulty staying focused on the attribute used to sort.	Give children 3 index cards showing colored boxes that match the colors of the cubes and have them repeat the sort. Have children match one cube at a time to the card.
naming a number that is 1 more or 1 less than the number in the group	have miscounted.	Ask children to recount the cubes in each group. If they struggle with counting, provide additional practice counting sets of 1 to 10 objects.

SESSION 4 Additional Practice

Solutions

Children:

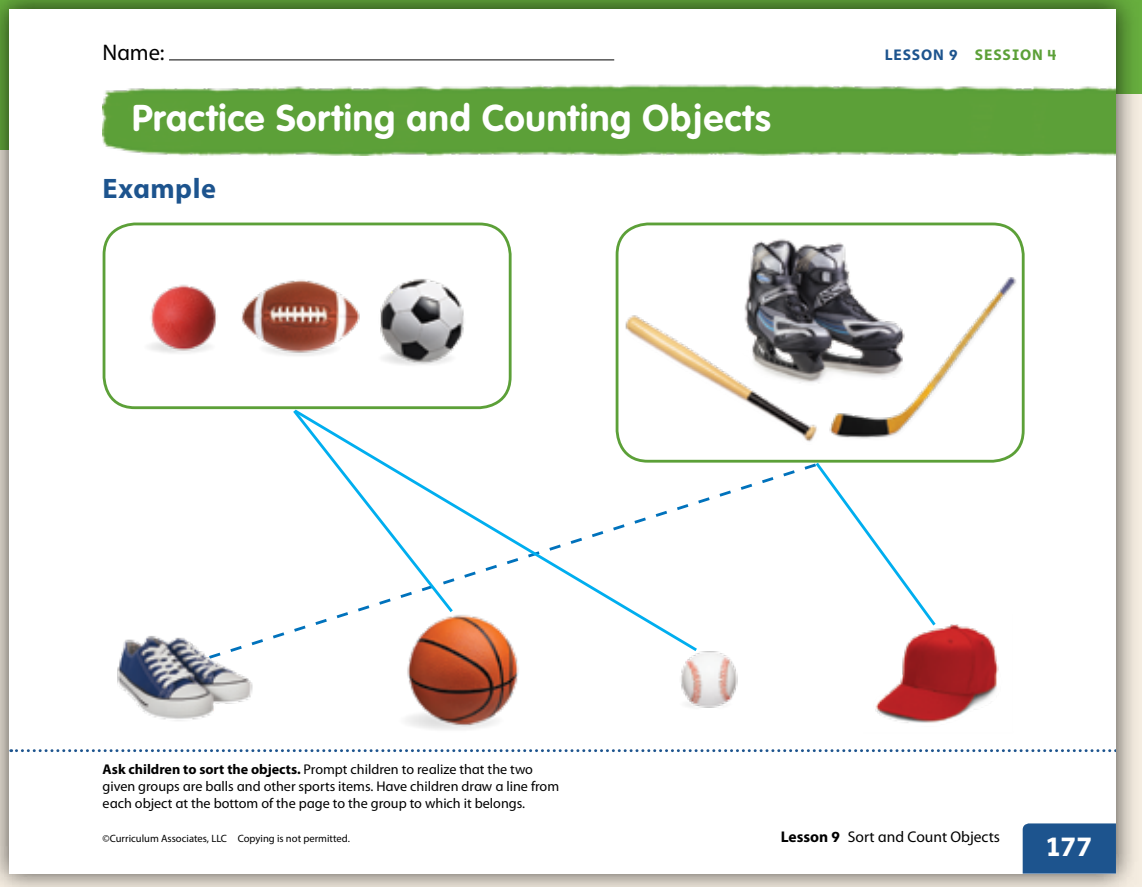
- recognize the two given groups
- draw a line from each object at the bottom of the page to the group it belongs with

Example

Shoes matched to the *not balls* group
Basic

Problems

- Basketball matched to the *balls* group
  Basic
- Baseball matched to the *balls* group
  Basic
- Hat matched to the *not balls* group
  Basic



Name: _____

LESSON 9 SESSION 4

Practice Sorting and Counting Objects

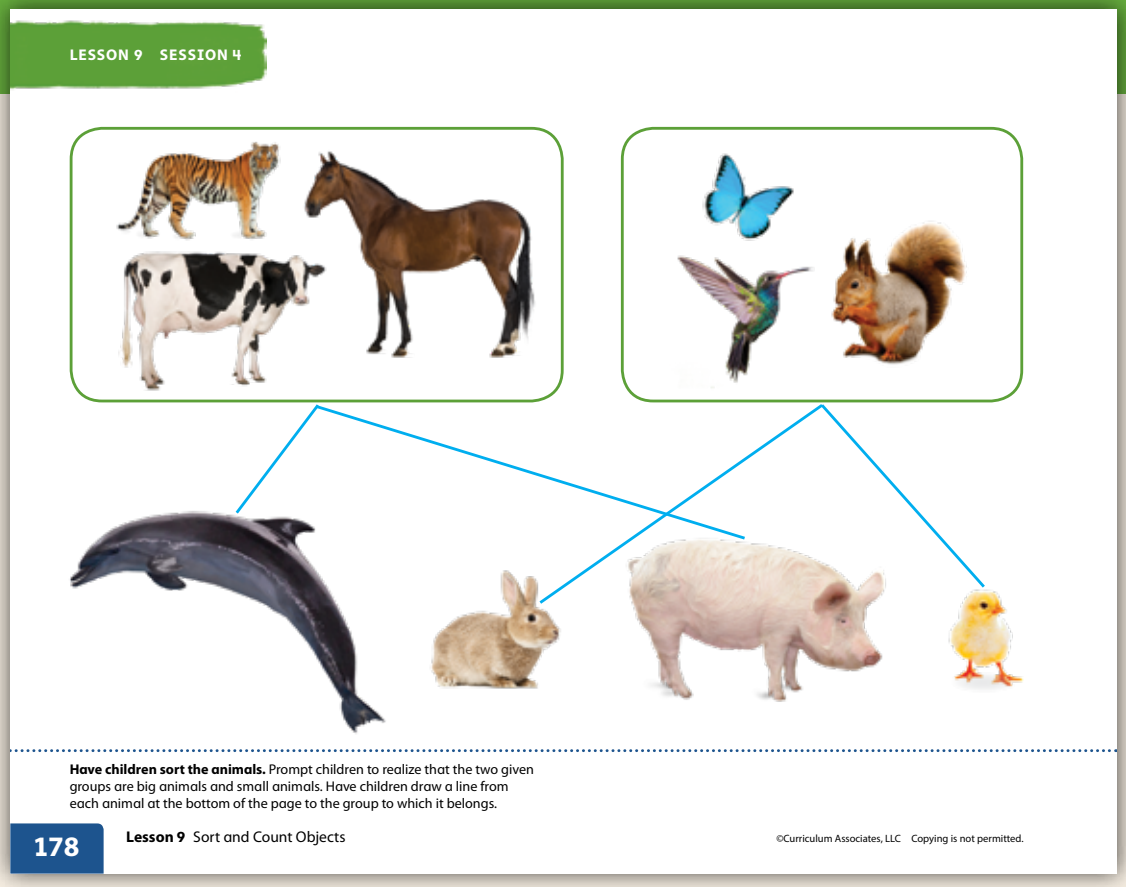
Example

Ask children to sort the objects. Prompt children to realize that the two given groups are balls and other sports items. Have children draw a line from each object at the bottom of the page to the group to which it belongs.

Lesson 9 Sort and Count Objects 177

Solutions

- Dolphin matched to the *big animals* group
  Medium
- Rabbit matched to the *small animals* group
  Medium
- Pig matched to the *big animals* group
  Medium
- Chick matched to the *small animals* group
  Medium



LESSON 9

SESSION 5 Refine

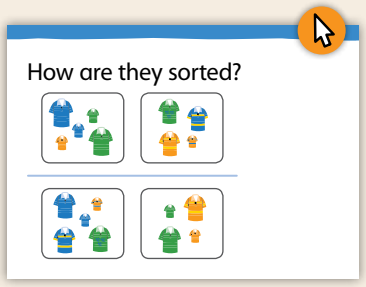
Purpose In this session children sort objects into groups. They continue to count and compare the groups they sort.

Start

Connect to Prior Knowledge

Why Reinforce determining categories that objects have been sorted by.

How Have children look at the two ways of sorting and discuss in pairs what they think the category is in each case.



Solution Not patterned/patterned, have blue/do not have blue

Apply It

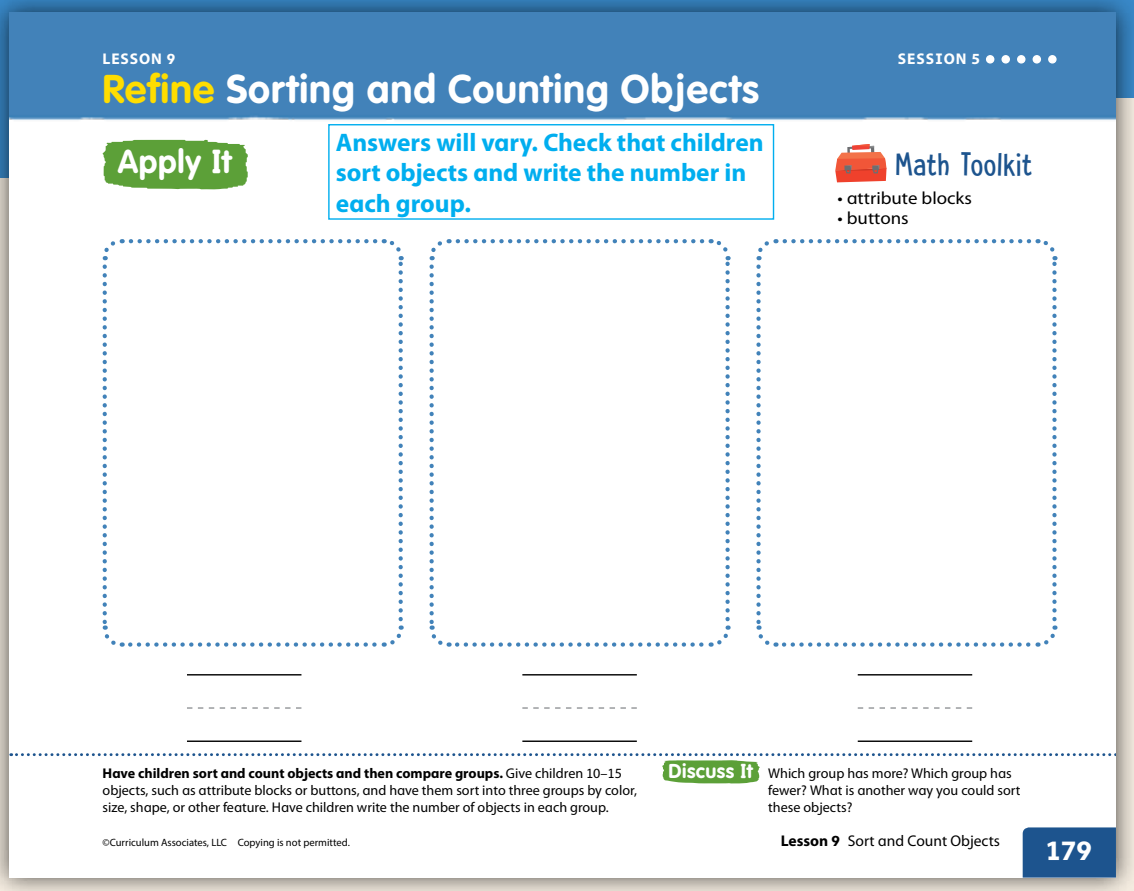
Materials For each child: 10–15 objects with sortable attributes (such as attribute blocks or buttons)

Tell children they will sort objects into three groups. They will then count and compare the groups.

For the first page, have children sort the objects into three groups by color, size, shape, or other attribute. They should place each group in one of the boxes on the Student Worktext page.

Have children write the number of objects in each group underneath the corresponding box.

For the second page, have children sort the buttons by color. Have them count the number of buttons of each color and write the number in the box of the same color. Suggest that children make light pencil marks on each button as they count, if needed.


LESSON 9

Refine Sorting and Counting Objects

SESSION 5 ● ● ● ● ●

Apply It

Answers will vary. Check that children sort objects and write the number in each group.

Math Toolkit
- attribute blocks
- buttons

Have children sort and count objects and then compare groups. Give children 10–15 objects, such as attribute blocks or buttons, and have them sort into three groups by color, size, shape, or other feature. Have children write the number of objects in each group.

Discuss It Which group has more? Which group has fewer? What is another way you could sort these objects?

Lesson 9 Sort and Count Objects 179

Discuss It

Support Whole Class Discussion

When children have finished the first page, have them choose two groups to compare and discuss their answers.

Ask *Which group has more? Which group has fewer? How do you know?*

Listen for Children may realize that the same group may have more or fewer, depending on which group it is compared to.

Ask *What is another way you could sort these objects?*

Listen for Children will suggest different answers depending on the objects used.

When children have finished the second page, have them compare the number of buttons in the yellow group with the number in each of the other groups.

Then have children consider different situations involving the buttons.

Ask *What is another way you could sort these buttons?*

Listen for Children may suggest sorting by size or by the number of holes in each button. Discuss any criteria that allow the objects to be sorted.

Ask *How would the groupings change if 2 red buttons were added?*

Listen for 2 red buttons would make another group. There would be 5 groups.

Differentiated Instruction

PERSONALIZE

i-Ready

Provide children with opportunities to work on their personalized instruction path with *i-Ready* Online Instruction to:

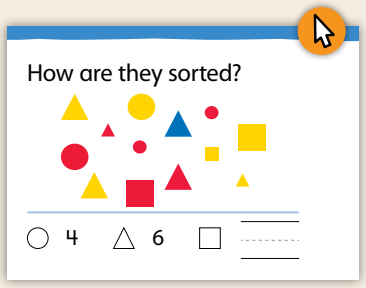
- fill prerequisite gaps
- build up grade-level skills

Close: Exit Ticket

Math Journal

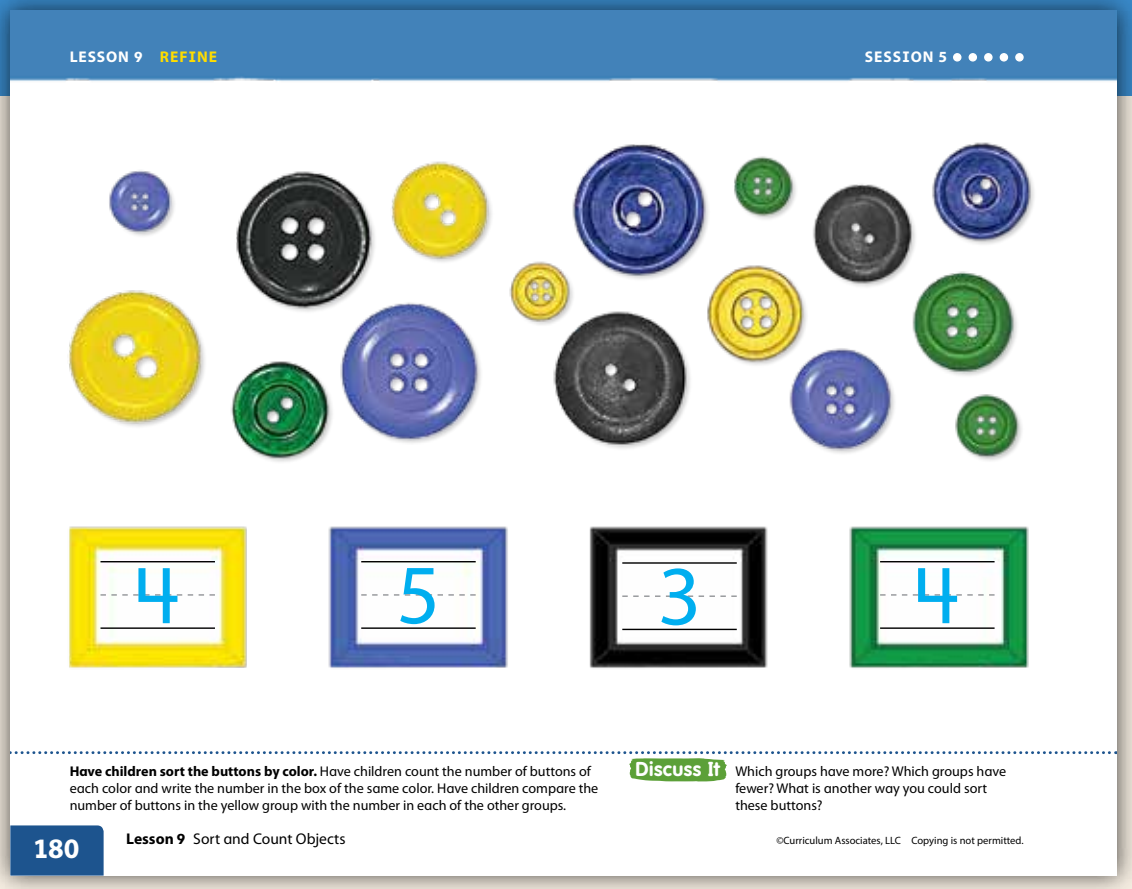
Materials For each child: copy of Close slide

Have children determine how the attribute blocks have been sorted. Then have them count the last group and write the number.



Solution They are sorted by shape. The last group has 3.

Error Alert **If** children write a number other than 3 for the last group, **then** remind them that they are sorting by shape. They can check their counting by marking each shape they count with a pencil or by placing a counter on each shape they count.



RETEACH

Hands-On Activity

Sort numbers 1–10.

Children struggling to sort and count objects

Will benefit from sorting objects that are numbered in a familiar sequence

Materials For each pair: Activity Sheet *Number Cards 0 to 10: Small*

- Ask pairs to mix up the cards for the numbers 1 through 10 and then sort them into two groups: numbers 1 through 5 and numbers 6 through 10.
- Have pairs count the cards in each group and compare them to see there are 5 in each group so the groups are equal. (This activity reinforces the concept that 10 is two groups of 5.)

EXTEND

Challenge Activity

Sort and order groups.

Children who have achieved proficiency in sorting

Will benefit from deepening understanding of sorting and ordering

Materials For display: 60 connecting cubes (15 each of four different colors), 1 opaque bag

- Put 3 colors of cubes in a bag (a different number of each color), with the total number of cubes being 2 or 3 more than the number of children in the class.
- Have each child take a cube from the bag without looking. Invite children to form groups by cube color, one color at a time. Together, count the number in each group.
- Discuss how to order the groups by number.
- Repeat the activity, this time with 4 colors and forming 4 groups.

Lesson Overview

LESSON 12

Name Shapes

Lesson Objectives

Content Objectives

- Correctly name shapes regardless of their orientation or overall size.
- Identify shapes as flat or solid.

Language Objectives

- Identify flat shapes (triangle, square, rectangle, circle, hexagon) and solid shapes (cube, cone, cylinder, sphere) by name.
- Circle specified flat and solid shapes in a group of shapes.
- Color specified shapes in a picture.

Prerequisite Skills

- Sort objects into given categories.
- Count up to 6 objects using one-to-one correspondence.

Standards for Mathematical Practice (SMP)

SMPs 1, 2, 3, 4, 5, and 6 are integrated in every lesson through the *Try-Discuss-Connect* routine.*

In addition, this lesson particularly emphasizes the following SMPs:

3 Construct viable arguments and critique the reasoning of others.

5 Use appropriate tools strategically.

6 Attend to precision.

8 Look for and express regularity in repeated reasoning.

*See page 1i to see how every lesson includes these SMPs.

Lesson Vocabulary

- **circle** a flat shape with no sides and no corners.
- **cone** a solid shape that slopes from a circular face to a point.
- **corner** a point where two sides of a shape meet.
- **cube** a solid shape with 6 square faces and all edges of equal length.
- **cylinder** a solid shape like a can.
- **hexagon** a flat shape with 6 straight sides and 6 corners.
- **rectangle** a flat shape with 4 sides and 4 square corners. The opposite sides have the same length.
- **side** a line that makes part of a flat shape.
- **sphere** a solid shape like a ball.
- **square** a flat shape with 4 straight sides of equal length and 4 square corners.
- **triangle** a flat shape with 3 straight sides and 3 corners.

Learning Progression

In Kindergarten children develop geometric concepts and spatial reasoning from multiple experiences with shapes in the environment. They use shape names to describe objects in the environment. They begin to understand the defining attributes of each shape and recognize different instances of a shape. They learn to distinguish between flat (two-dimensional) and solid (three-dimensional) figures. They model simple shapes and begin to compose these shapes to form larger shapes.

In this lesson children learn to correctly name shapes regardless of their orientation or size, which are not defining attributes. To enable children to correctly name shapes, they will learn defining attributes of shapes, such as the number of sides or whether a shape has curves. In addition, understanding whether a shape is flat or solid will help children identify and name each shape.

In Grade 1 children will continue to distinguish defining attributes of shapes and differentiate them from non-defining attributes, such as color, orientation, and overall size.

Lesson Pacing Guide

Whole Class Instruction

SESSION 1 Explore *45–60 min*	**Naming Shapes** • Start *5 min* • Try It *20 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 231–232 **Building Fluency** Use throughout lesson
SESSION 2 Develop *45–60 min*	**Naming Shapes** • Start *5 min* • Try It *5 min* • Discuss It *15 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 235–236 **Fluency Practice** Recognize Flat Shapes Identify Numbers to 7
SESSION 3 Develop *45–60 min*	**Naming Shapes** • Start *5 min* • Try It *10 min* • Discuss It *10 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 239–240 **Fluency** Naming Shapes
SESSION 4 Refine *45–60 min*	**Naming Shapes** • Start *5 min* • Apply It *10 min* • Discuss It *25 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 243–244
SESSION 5 Refine *45–60 min*	**Naming Shapes** • Start *5 min* • Apply It *10 min* • Discuss It *5 min* • Small Group Differentiation *20 min* • Close: Exit Ticket *5 min*	**Lesson Quiz** or **Digital Comprehension Check**

Lesson Materials

Lesson *(Required)*

Per child: 5 counters, attribute blocks, 6 crayons (1 yellow, 1 red, 1 orange, 1 green, 1 blue, 1 purple), copy of Start slide (Session 2), copy of Close slide (Session 2, Session 5)
Per pair: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)
Per group: a set of flat and solid shapes, collection of 5 classroom objects
For display: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere), examples of flat and solid shapes in the classroom, 1 bag
Activity Sheets: Flat Shape Cards, Solid Shape Cards, Triangles

Activities

Per child: 5 crayons (1 blue, 1 green, 1 yellow, 1 red, 1 purple)
Per pair: 7 counters, 1 cup, toothpicks, pipe cleaners, modeling clay, paper
For display: 1 cube, 1 triangle, 1 cone, solid shapes of different sizes, list or picture of each shape used in the lesson
Activity Sheet: Flat Shapes

Math Toolkit counters, flat shape cards, solid shape cards, flat and solid shapes, crayons

Teacher Toolbox

Small Group Differentiation

RETEACH

Tools for Instruction

Grade K
• Lesson 12 Flat Shapes and Solid Shapes

REINFORCE

Math Center Activities

Grade K
• Lesson 12 I Spy Shapes
• Lesson 12 Shape Match
• Lesson 12 Is It Flat or Solid?
• Lesson 12 Match and Name Shapes

EXTEND

Enrichment Activity

Grade K
• Lesson 12 Shape Pictures

i-Ready

Independent Learning

PERSONALIZE

i-Ready Lessons*

Grade K
• Cube
• Sphere
• Circle
• Square
• Triangle
• Identify Two-Dimensional Shapes
• Practice: Identify Two-Dimensional Shapes

*We continually update the Interactive Tutorials. Check the Teacher Toolbox for the most up-to-date offerings for this lesson.

Connect to Family, Community, and Language Development

The following activities and instructional supports provide opportunities to foster school, family, and community involvement and partnerships.

Connect to Family

Use the **Family Letter**—which provides background information, math vocabulary, and an activity—to keep families apprised of what their child is learning and to encourage family involvement.

Goal

The goal of the Family Letter is to introduce the concept of shapes.

Activity

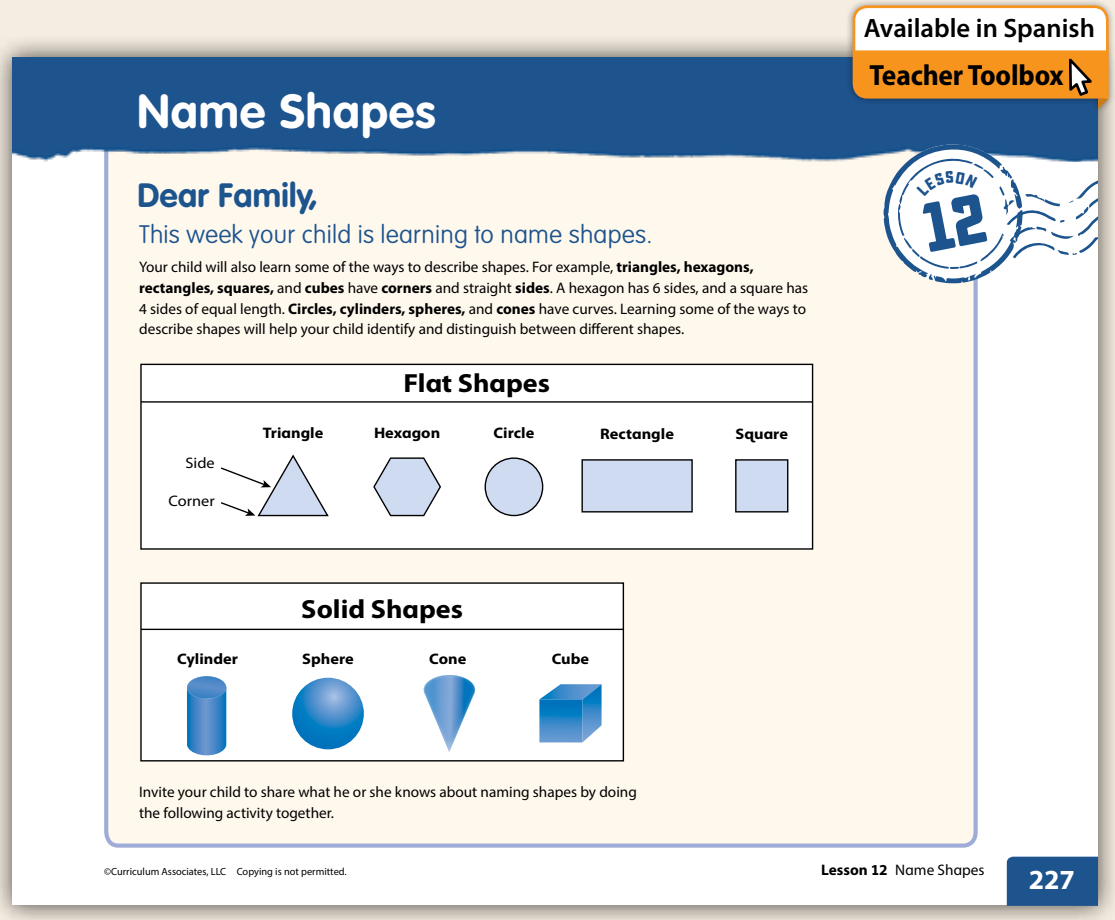
Children will learn to identify and describe flat and solid shapes. Look at the *Naming Shapes* activity and adjust if needed to connect with children.

Math Talk at Home

Encourage children to go on a shape hunt with a family member at home or on their way home from school. Have them look for objects or items that have similar shapes and count the sides and edges. Have them record their findings and tell what shape they found the most of at home and on the street.

Conversation Starters Below are additional conversation starters children can write in their Family Letter or math journal, with your guidance, to engage family members.

- *What shapes are flat?*
- *What shapes are not flat?*
- *What shapes are round?*
- *What shapes have edges or corners?*
- *What shapes did you find the most of in the house?*
- *What shapes did you find the most of outside?*



Available in Spanish

Teacher Toolbox

Name Shapes

LESSON 12

Dear Family,

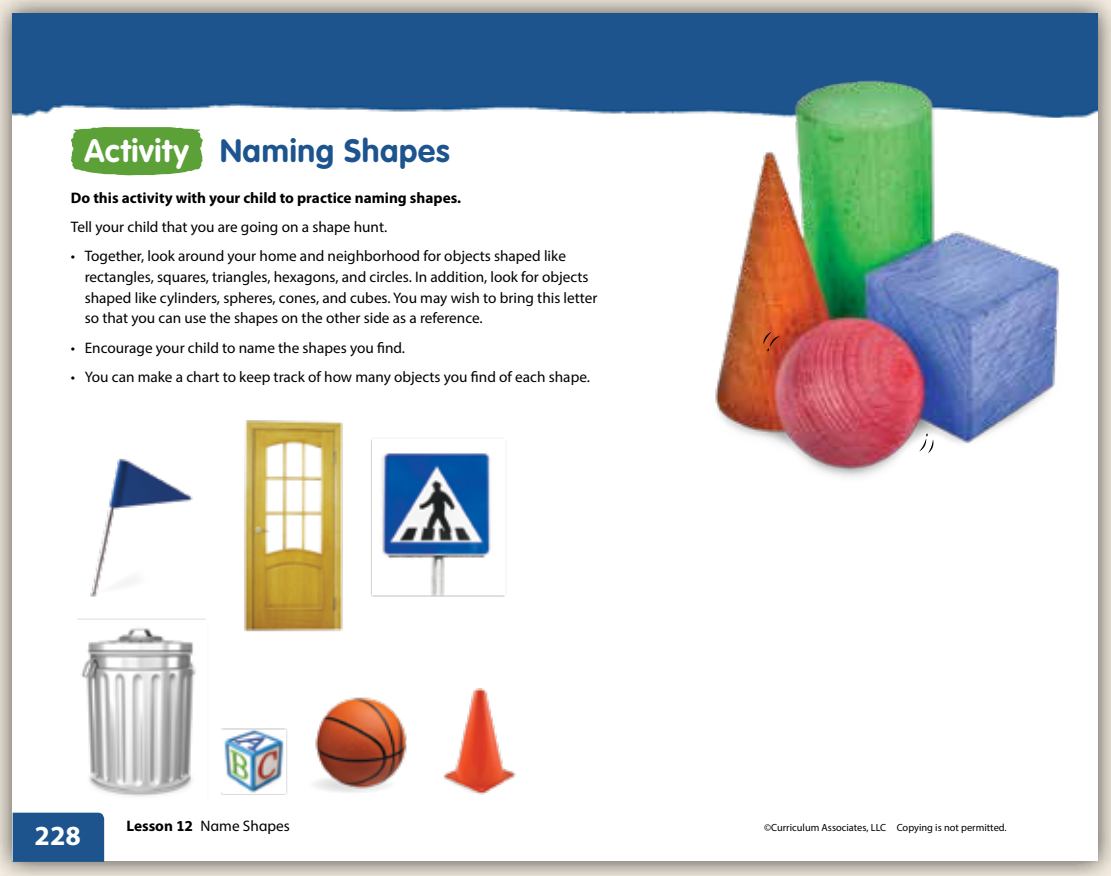
This week your child is learning to name shapes.

Your child will also learn some of the ways to describe shapes. For example, **triangles, hexagons, rectangles, squares,** and **cubes** have **corners** and straight **sides**. A hexagon has 6 sides, and a square has 4 sides of equal length. **Circles, cylinders, spheres,** and **cones** have curves. Learning some of the ways to describe shapes will help your child identify and distinguish between different shapes.

Flat Shapes

Solid Shapes

Invite your child to share what he or she knows about naming shapes by doing the following activity together.



Activity Naming Shapes

Do this activity with your child to practice naming shapes.

Tell your child that you are going on a shape hunt.

- Together, look around your home and neighborhood for objects shaped like rectangles, squares, triangles, hexagons, and circles. In addition, look for objects shaped like cylinders, spheres, cones, and cubes. You may wish to bring this letter so that you can use the shapes on the other side as a reference.
- Encourage your child to name the shapes you find.
- You can make a chart to keep track of how many objects you find of each shape.

Connect to Community and Cultural Responsiveness

Use these activities to connect with and leverage the diverse backgrounds and experiences of all children.

Session 1 **Use anytime during the session.**

- Write the names of shapes on the board: *circle, hexagon, rectangle, square, triangle, cube, cylinder, cone,* and *sphere*. Ask children to talk about where they see these shapes in their homes and neighborhoods. Guide them to compare and contrast shapes and objects. Guide the discussion by asking: *How is a circle different from a ball? How is a square different from a cube? How are a rectangle and the door alike?* Group children. Assign each group the name of a shape and have them look around the classroom to find objects with that shape. Invite group members to share what objects they found.

Sessions 3 and 5 **Use anytime during the sessions.**

- Ask children to draw a picture of their favorite place. Encourage them to include shapes in their drawing. List the names of the shapes on the board and have children use some of the words to label their drawings. Invite children to share words for shapes that they know in other languages. Point out any cognates, for example, Spanish cognates *triángulo, círculo, cilindro,* and *cubo*.

Connect to Language Development

For ELLs, use the Differentiated Instruction chart to plan and prepare for specific activities in every session.

ELL English Language Learners: Differentiated Instruction

Prepare for Session 1
Use with *Connect It*.

Levels 1–3	Levels 2–4	Levels 3–5
Listening/Speaking To prepare for ***Connect It***, model the meaning of the word *flat* with your hand. Say: *This represents a flat shape*. Have children model *flat* with their hands and say the word aloud. Then model the meaning of the word *solid* with your fist. Say: *This represents a solid shape*. Hold up a shape card with a picture of a circle. Ask: *What is the name of this shape?* Say the name aloud with children. Ask: *Is a circle flat or solid?* Have children find the shape and place it in the Flat Shapes box. Repeat with other shape cards, having children decide whether each shape is flat or solid.	**Listening/Speaking** To prepare for ***Connect It***, model the meaning of the word *flat* with your hand. Say: *This represents a flat shape*. Have children model *flat* and say the word aloud. Then model the meaning of the word *solid* with your fist. Say: *This represents a solid shape*. Have children model and say the word aloud. Pair children. Have them take turns picking a card and telling each other the name of the shape and whether it is flat or solid. Provide a sentence frame: • *The _____ is a _____ shape.*	**Listening/Speaking** Pair children for ***Connect It***. Have them take turns picking a card and saying the name of the shape. Have children tell how they know whether it is flat or solid. Encourage them to answer using full sentences. Invite volunteers to talk about the differences and similarities between the shapes.

LESSON 12

SESSION 1 Explore

Purpose In this session children differentiate three-dimensional (solid) shapes from two-dimensional (flat) shapes and informally describe shapes.

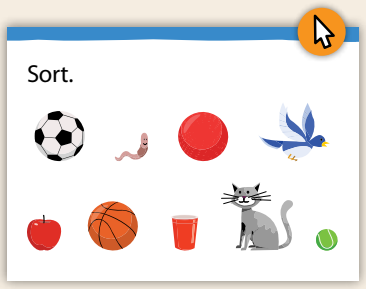
Start

Connect to Prior Knowledge

Materials For each group of 3: collection of 5 objects from around the classroom

Why Reinforce looking at attributes of objects that are similar and different, which can be used to sort and later to identify.

How Have children look at the group of objects on the slide and tell different ways they can be sorted. Then place a collection of objects from the classroom in front of each group and have children sort by a category. The rest of the class can try to figure out what the category is.



Possible Solutions Sorted by color, function, shape, size

Try It

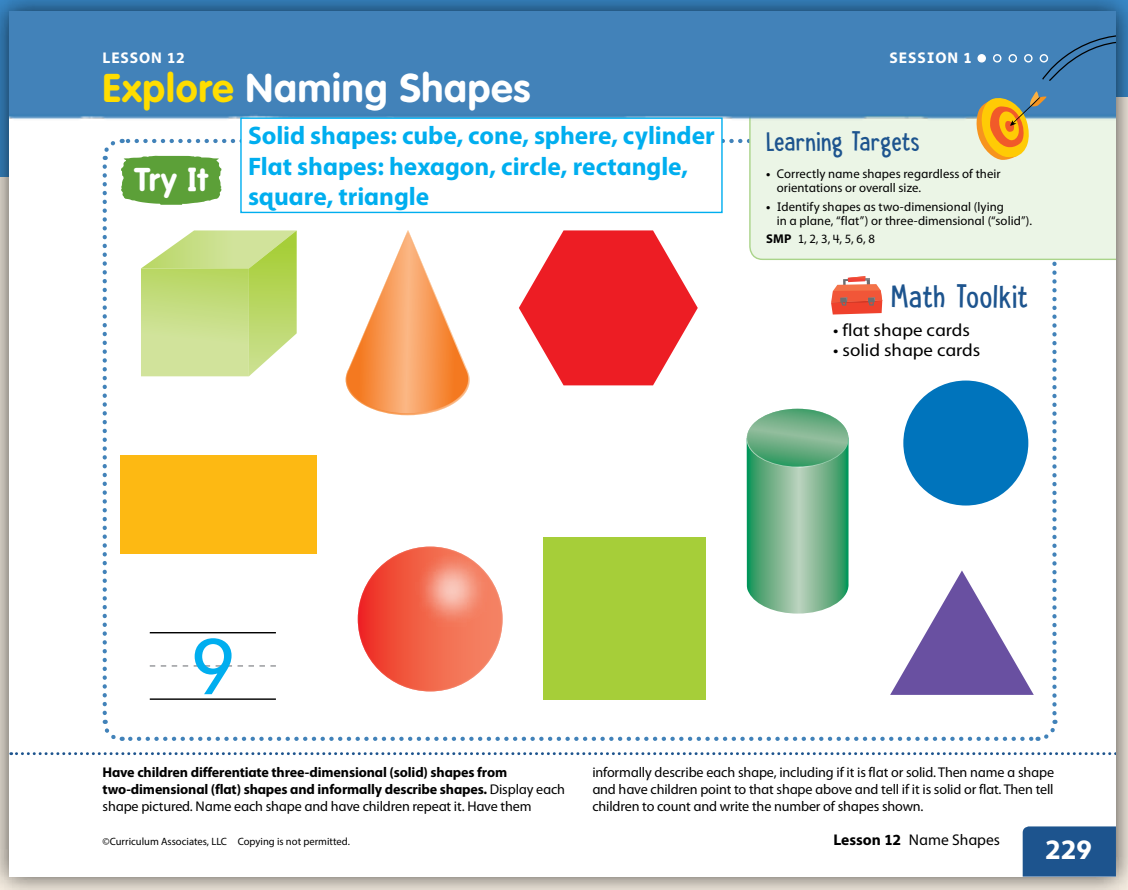
Materials For display: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

Identify Flat and Solid Shapes

Scatter the attribute blocks and geometric solids on the table.

Ask *What shapes can you see?*

Listen for I can see round shapes, a ball shape, shapes with corners, shapes that are bigger.



Say: *The shapes that "stick up" are solid shapes, also called three-dimensional shapes. The shapes that are flat are flat shapes, also called two-dimensional shapes.*

Name and Informally Describe Shapes

Hold up each of the shapes one at a time, name it, and have children repeat the name. Then ask children whether the shape is flat or solid.

When you have shown and named all the shapes, then hold up the circle.

Ask *How would you describe this shape?*

Listen for Round. Curved. It goes all the way around. Flat and round like a CD.

Hold up the sphere or ball.

Ask *How would you describe this shape?*

Listen for Round. Curved. It goes all the way around. Solid and like a ball. Round like a planet. No flat parts.

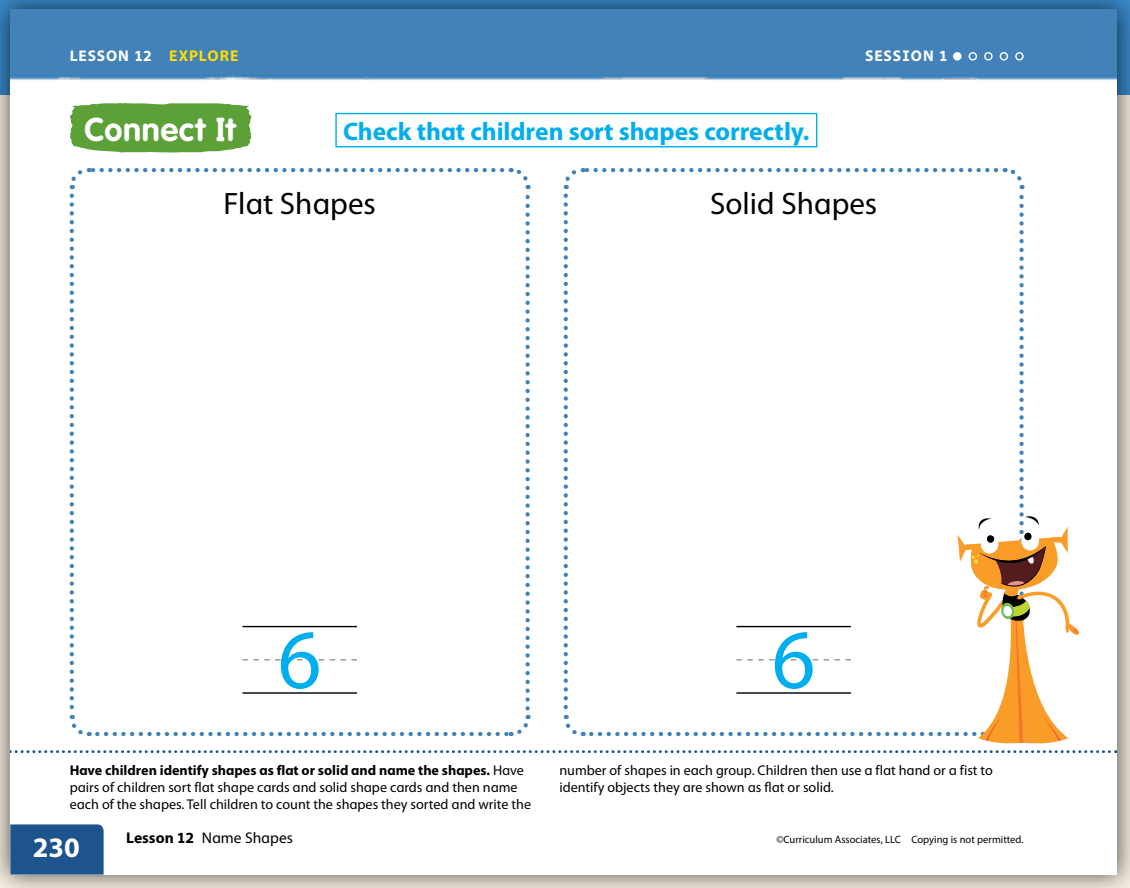
Ask *How do you know it is not a circle?*

Listen for A circle is flat. The sphere is a solid. A circle is two-dimensional, and a sphere is three-dimensional.

Ask children to describe each of the other shapes in their own words. Listen for children describing the shape as flat or solid.

Have children look at the Student Worktext page. Say the name of one of the shapes. Have children point to the shape on their page, and then have them say whether it is a flat shape or a solid shape. Encourage children to share how they decided. Then tell children to count the shapes on the Student Worktext page and write the number of shapes shown.

Common Misconception **If** children cannot tell from the pictures whether the shape is flat or solid, **then** place the shapes in front of them so that they can see for themselves whether the shape is solid or flat.



Connect It

Materials For each pair: Activity Sheet *Flat Shape Cards*, Activity Sheet *Solid Shape Cards*

Sort Flat and Solid Shapes

Have children work in pairs. Give each pair a shuffled pile of the flat shape cards and the solid shape cards. Have children work together to decide whether a card shows a solid shape or a flat shape and place it on the appropriate workmat on the Student Worktext page. Encourage children to tell their partner the name of each shape. Have children count the flat shapes and solid shapes they sorted and write the number of shapes in each group.

Support Whole Class Discussion

Have children hold up one of the shape cards.

Ask *What is the name of your shape? How do you know that name is correct?*

Listen for This is a hexagon because it is a flat shape and has lots of straight parts. This is a cylinder because it is a solid shape and it looks like the shape of a can, flat on the top and bottom and round in the middle.

Listen for other descriptions of shapes. After all the shapes have been described, continue the discussion.

Ask *Can you see any flat shapes on the solid shapes?*

Listen for I can see circles on the cylinders. I can see squares on the cubes. I can see a circle on the cone. I cannot see any flat shapes on the sphere.

Identify Flat or Solid Shapes

Hold up a ball or sphere. Ask children to show with their hand if the shape is flat or solid (with a flat hand for flat shapes and a fist for solid shapes). Observe to see which children answer quickly and which hesitate. Repeat with other flat and solid shapes.

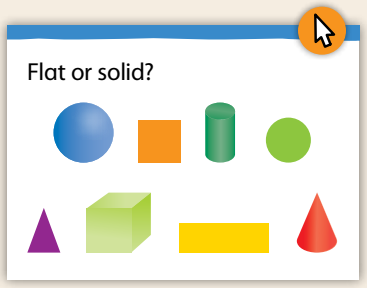
Ask *How did you decide whether a shape is flat or solid?*

Listen for If the shape is like a block, I know it is solid. If the shape is flat and like it is squashed, it is a flat shape.

Close: Exit Ticket

Materials For each pair: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

Have partners take turns to pick up a shape and have the other partner say its name and make a flat hand or fist to show if it is flat or solid. Then have children do the same as you point to the shapes on the slide.

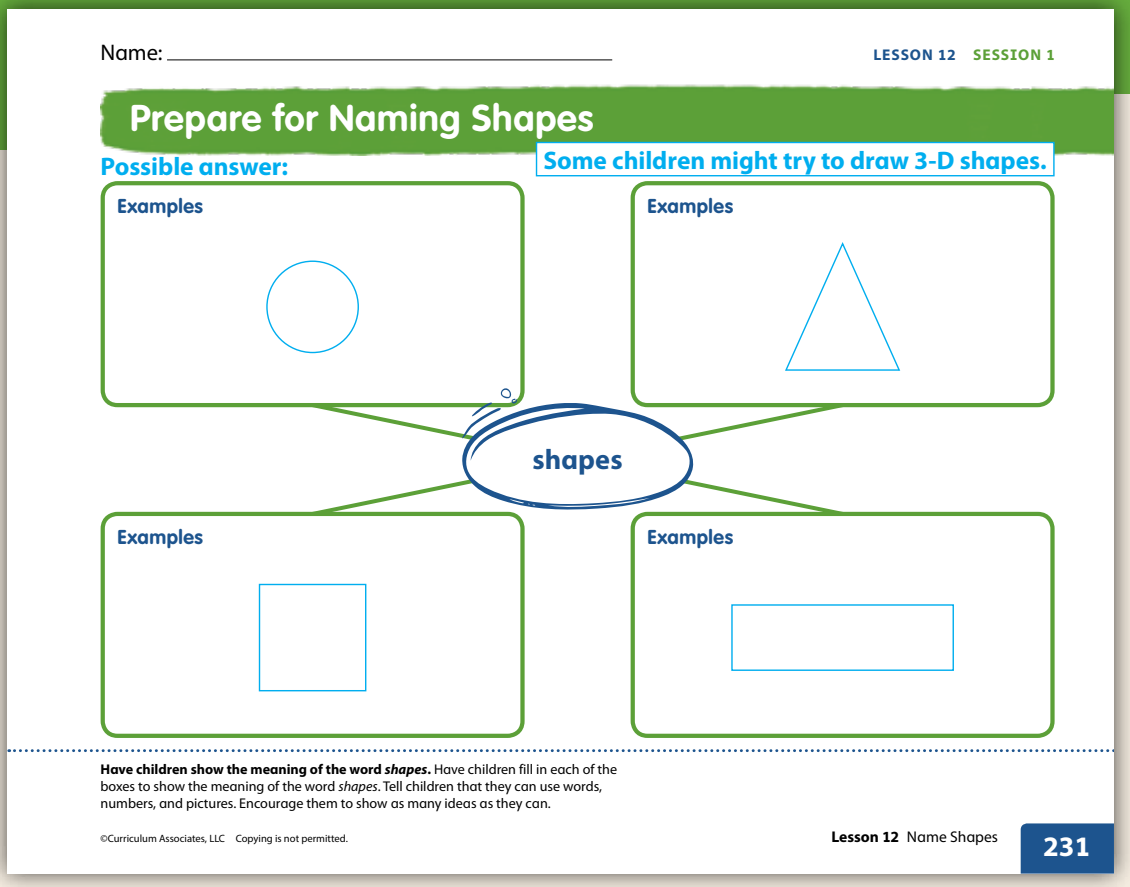


Look for Children name shapes correctly and show with their hand if each one is flat or solid.

Common Misconception **If** children muddle names or name a sphere a ball or circle, **then** go through the shapes again, holding them up one at a time, saying the name, and having children repeat the name.

Real-World Connection

Encourage children to think about the shapes of objects they see around them. Identify shapes as you walk around school, such as the shapes of the doors, windows, tissue boxes, balls in the gym, etc. Have children distinguish between the solid shapes they see and the flat shapes.


Name: _____ LESSON 12 SESSION 1

Prepare for Naming Shapes

Possible answer:

Some children might try to draw 3-D shapes.

Have children show the meaning of the word *shapes*. Have children fill in each of the boxes to show the meaning of the word *shapes*. Tell children that they can use words, numbers, and pictures. Encourage them to show as many ideas as they can.

Solutions

Support Vocabulary Development

This activity can be used to informally assess children's understanding of naming shapes. Children can show what they know now. You can have them revise their thinking and revisit their responses once they have completed the lesson or unit.

If children need additional support, the following steps provide explicit instructions to guide children.

Have children point to the term *shapes* in the graphic organizer and say the word. Say: *We use the word* shapes *to describe the different forms objects have*. Hold up a circle. Say: *This is a shape. The name of this shape is* circle. Show that the shape is flat. Repeat with a sphere and show that it is solid. Have children draw other shapes they know in the graphic organizer.

Supplemental Math Vocabulary

- *rectangle*
- *cylinder*

Building Fluency

Practice naming shapes.

Children can name the shapes of objects found in books, objects used for art projects, etc., or by playing What Is My Shape?

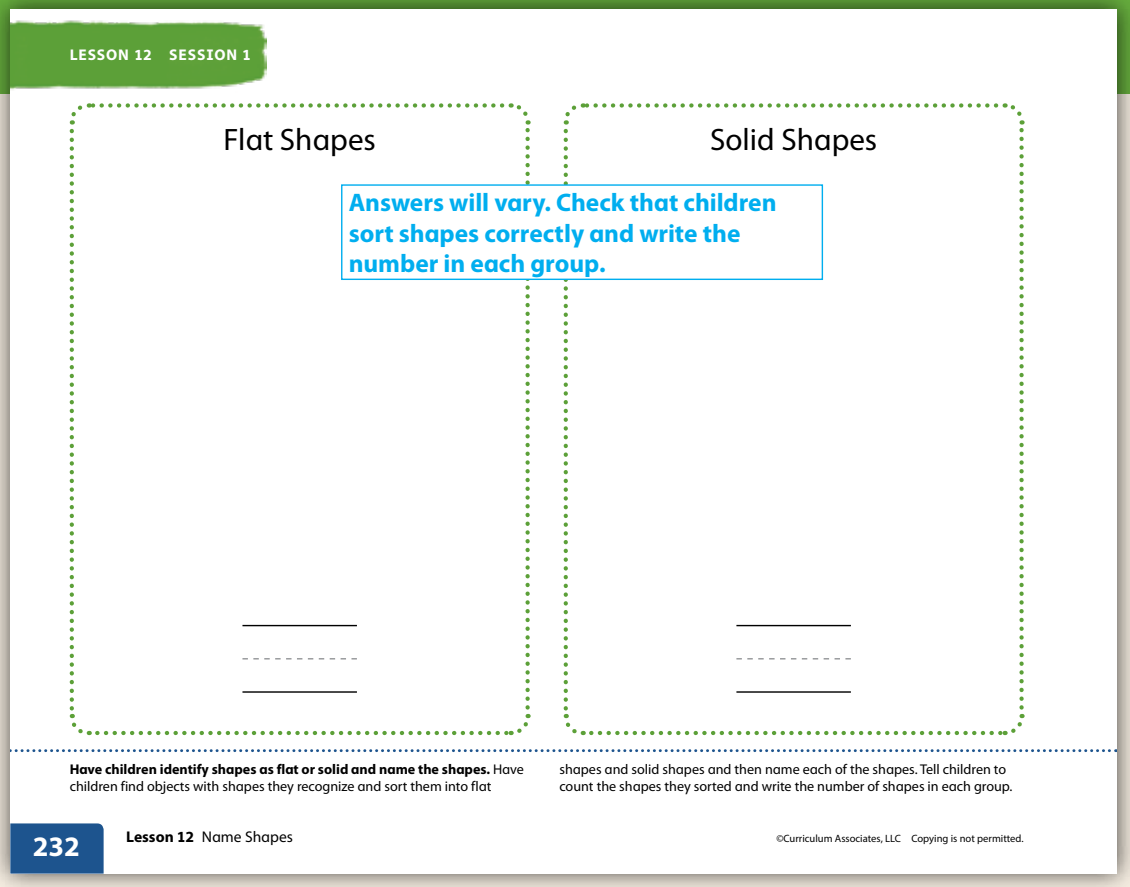
Solution

Introduce the problem to provide another look at identifying shapes as flat or solid and naming the shapes.

This problem is very similar to the problem about sorting shape cards. In this problem, children identify shapes as flat or solid and name the shapes. Have children find objects with shapes they recognize, sort them into flat shapes and solid shapes, name each shape, and write the number of shapes in each group.

Children may want to use attribute blocks, geometric solids, or household objects with shapes they recognize such as a soup can, a placemat, a box of tissues, etc.

- Answers will vary. Circles, squares, rectangles, triangles, and hexagons are flat shapes. Cylinders, spheres, cones, and cubes are solid shapes.
  Medium


LESSON 12 SESSION 1

Flat Shapes

Solid Shapes

Answers will vary. Check that children sort shapes correctly and write the number in each group.

Have children identify shapes as flat or solid and name the shapes. Have children find objects with shapes they recognize and sort them into flat shapes and solid shapes and then name each of the shapes. Tell children to count the shapes they sorted and write the number of shapes in each group.

232 **Lesson 12** Name Shapes ©Curriculum Associates, LLC Copying is not permitted.

ELL English Language Learners: Differentiated Instruction

Prepare for Session 2
Use with *Connect It*.

Levels 1–3

Listening/Speaking Have children point to the rectangle in the first row of ***Connect It***. Ask: *Is the rectangle flat?* Have children draw a circle around the rectangle. Point to the cube in the second row. Ask: *Is this a cube? Is it flat or solid?* Pause for children to answer. Have children draw a circle around it. Ask children to point to the cylinder in the third row. Have children find another cylinder.

Levels 2–4

Listening/Speaking Have children point to the rectangle in the first row of ***Connect It***. Ask: *Is the rectangle flat?* Have children draw a circle around the rectangle. Ask children to find another flat shape in the row. Point to the cube in the second row. Ask: *What is the name of this shape? Is it flat or solid?* Have children find another solid shape in the row. Ask children to point to the cylinder in the third row. Have children find other cylinders in the row. Ask: *Are the cylinders flat or solid?*

Levels 3–5

Listening/Speaking Pair children for ***Connect It***. Have them take turns finding the flat shapes and solid shapes. Ask: *How do you know if a shape is flat or solid? How are flat shapes the same? How are they different?* Guide children to use the words *sides, edges, corners*, and/or *round* in their answers.

LESSON 12

SESSION 2 Develop

Purpose In this session children identify and discuss two- and three-dimensional shapes in the picture. They then distinguish between flat and solid shapes.

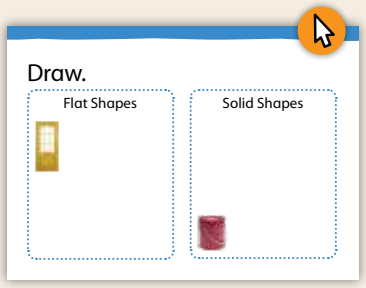
Start

Connect to Prior Knowledge

Materials For each child: copy of Start slide; For display: Ensure there is an object of each shape (circle, rectangle, square, triangle, hexagon, sphere, cube, cone, and cylinder) somewhere obvious in the classroom.

Why Reinforce naming shapes and identifying whether they are flat or solid.

How Have children work in pairs to find shapes around the classroom to identify and draw (for recording only so drawings need not be accurate) under either *Flat Shapes* or *Solid Shapes*.



Possible Solutions Flat shapes: rectangle window and hexagon coaster; solid shapes: cube tissue box and cylinder glue stick

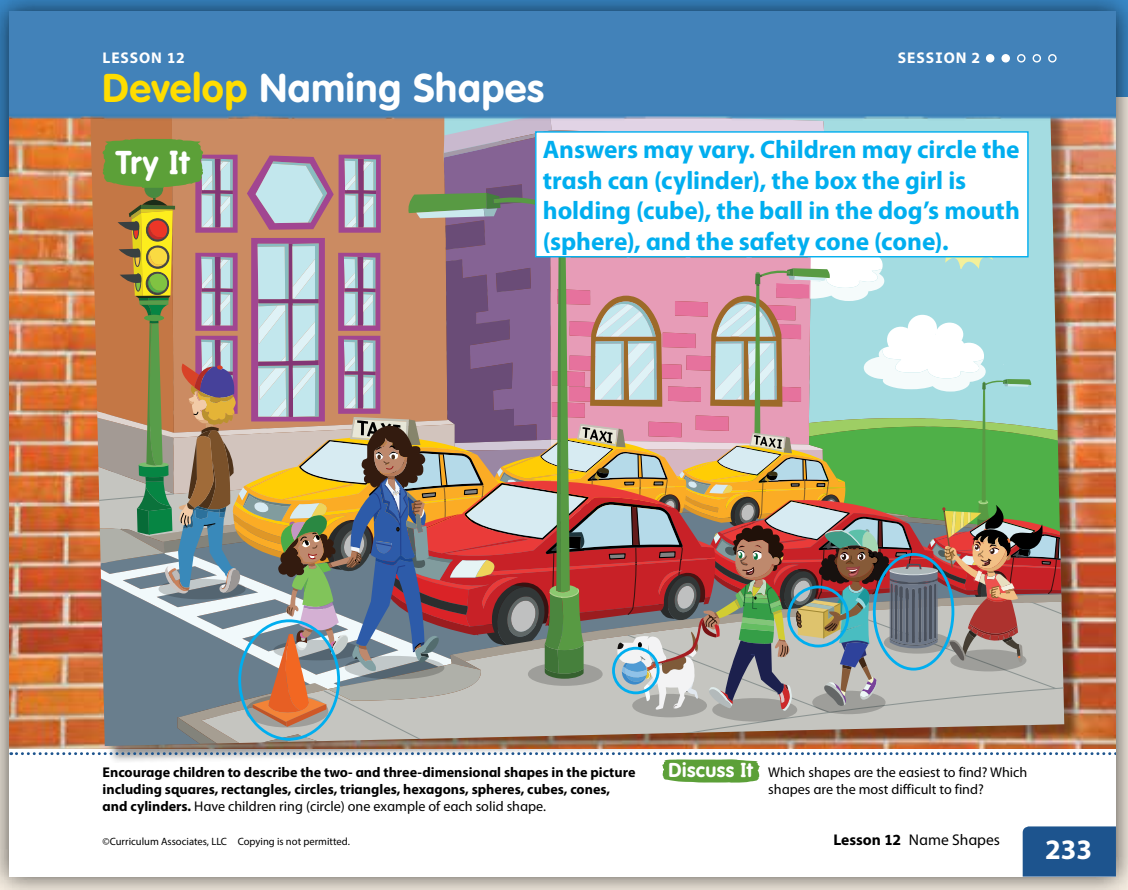
Develop Language

Why Avoid confusion between the noun *circle* in reference to naming shapes and the verb *to circle* to indicate an answer.

How Draw three shapes on the board: a triangle, a circle, and a square. Say: *If I want you to find the circle, and I tell you to circle the circle, it might get confusing. Also, when you draw a line around something, it's not going to be perfectly round, like a circle.* Explain to children that when you want them to indicate an answer, you will use the term *ring,* instead of *circle,* to avoid confusion.

Try It

Present the scene and engage children by having them describe the two- and three-dimensional shapes in the picture, including squares, rectangles, circles, triangles, hexagons, spheres, cubes, cones, and cylinders.



Ask *Can you see flat and solid shapes? What types of objects are showing solid shapes?*

Have children ring (circle) one example of each solid. Name the different solids one at a time: sphere, cube, cone, and cylinder.

Discuss It

Support Partner Discussion

Have children talk in pairs about how they know which shapes are which.

Support as needed with questions such as:

- *Did your partner find the same shapes as you?*
- *What did your partner find that was different?*
- *Did you both use the same words to describe the shapes, or did you use different words?*

Common Misconception **If** children struggle to identify shapes in the picture, **then** give them a set of solid and flat shapes so that they can try to match a shape to an item in the picture.

Select and Sequence Solutions

Select children to present many different solutions. Choose children who identified:

- windows that are a square, a rectangle, and a hexagon
- flat circle shape in the stoplight
- solid sphere ball in the dog's mouth

Support Whole Class Discussion

Compare and connect children's solutions by having them share the shapes they found.

Record and discuss the descriptions and names of the shapes identified.

Ask *What shapes were easy to find?*

Listen for Rectangles are easiest to find because there are more of them. The hexagon is easy to find because it looks different from the other windows. The cone is easy to find because it is called a cone.

Ask *What shapes were difficult to find?*

Listen for Spheres are difficult to find because they look like circles. The cylinder is hard to find because the lid covers the flat top, making it bumpy.

Ask *Can you see any parts of shapes? An almost shape?*

Listen for Bricks on the wall. Stripes on the crosswalk. The stoplight is almost a rectangle. Wheels on the cars are almost circles. The car doors are almost rectangles.

Ask *How do you know which shapes are squares?*

Listen for A square is a flat shape. It has 4 corners and 4 straight sides. The sides are all the same length.

Explain that a square is a special type of rectangle. It has 4 corners and 4 straight sides like the rectangle, but the sides on all other rectangles are two different lengths, not all the same like the square.

Connect It

Materials For each table: a set of flat and solid shapes

Support Whole Class Discussion

Explain to children they will sort the shapes.

Have children circle the flat shapes in the top row, the solid shapes in the middle row, and the cylinders in the bottom row.

Ask *How can you tell which shapes are flat?*

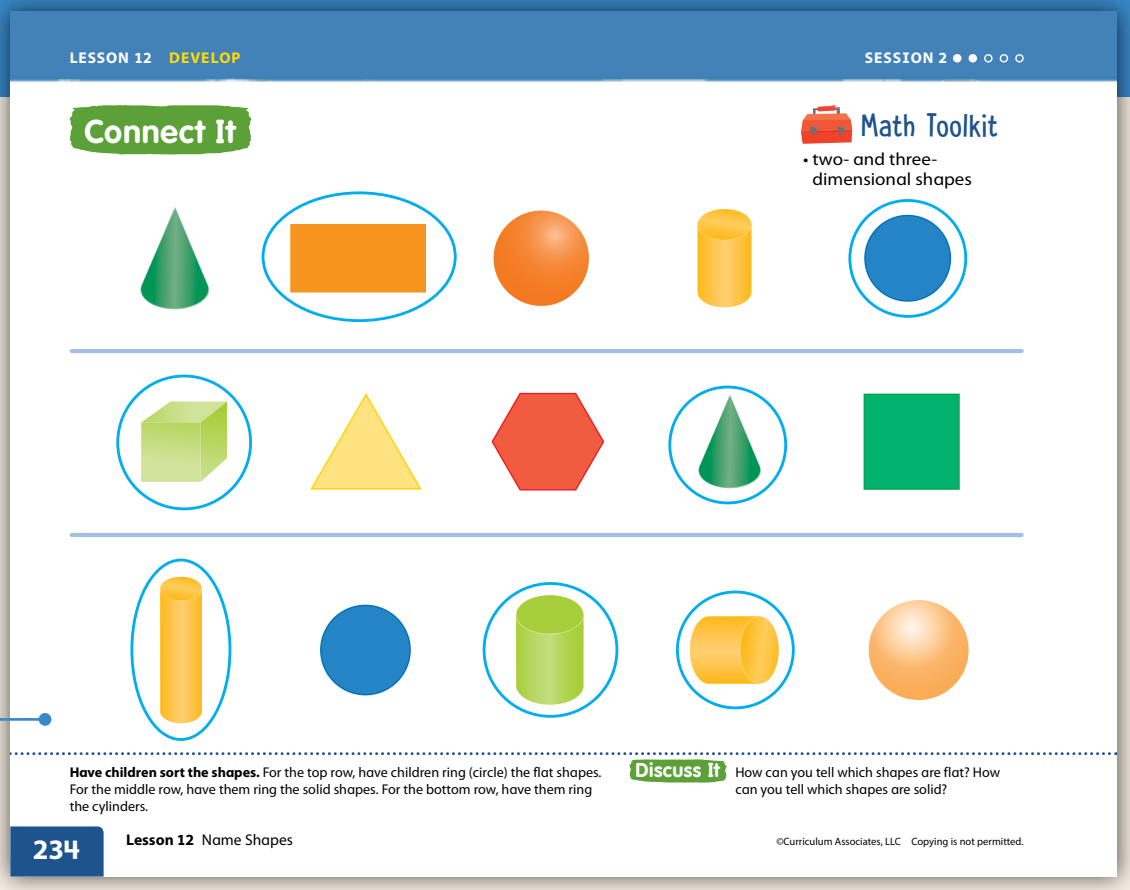
Listen for The shapes that do not look like building blocks are flat. I know that circles and rectangles are flat shapes and that cones, spheres, and cylinders are solid shapes.

Ask *How can you tell which shapes are solid?*

Listen for The shapes that look like building blocks are solid shapes. I know that a square, hexagon, and triangle are flat shapes and that a cube and cone are solid shapes.

Ask *How can you tell which shapes are cylinders?*

Listen for I know that a cylinder is a solid shape. A cylinder is round and can roll. Cylinders have two flat parts so they can stand up.



Deepen Understanding

Naming Shapes

SMP 6 Attend to precision.

Materials For display: 1 cube, 1 triangle, 1 cone

When children are discussing the problems, prompt them to use precise mathematical vocabulary to differentiate shapes.

Hold up a cube.

Ask *How could you describe this shape?*

Listen for It is called a cube. It is a solid (three-dimensional) shape. It has 6 flat parts that are squares.

Hold up a triangle.

Ask *How could you describe this shape?*

Listen for It is called a triangle. It is a flat (two-dimensional) shape. It has 3 straight sides and 3 corners.

Generalize Hold up a triangle and a cone. *How can you tell which shape is which?* Listen for precise language, such as *cone, triangle, flat, solid, circle, point, sides,* and *corners.*

Close: Exit Ticket

Materials For each pair: Activity Sheet *Triangles*, copy of Close slide

Have each pair look at their group of triangles and say what is the same about all of them. Ask: *What is it that makes them all triangles?*

Then have children look at the slide and ring (circle) all of the triangles.

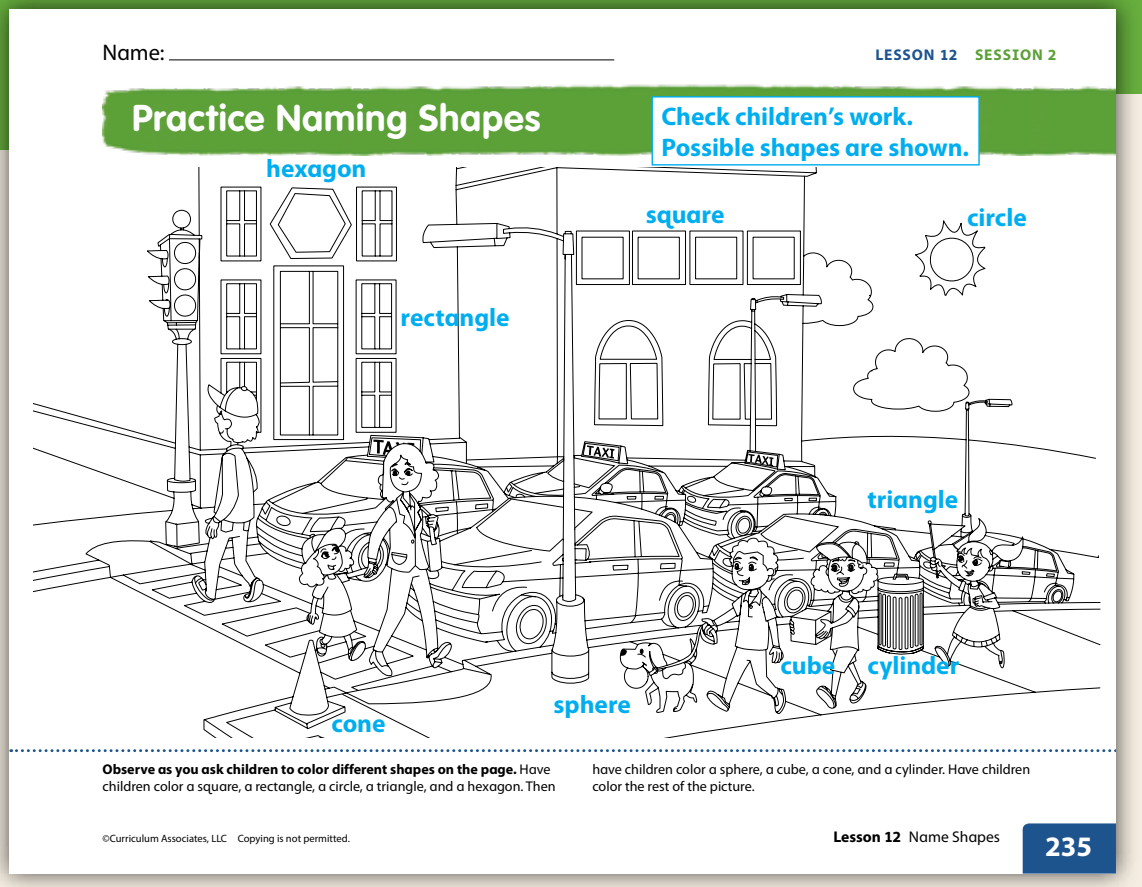
Solution All 4 triangles circled

Common Misconception **If** children circle fewer than 4 triangles, **then** remind them that all triangles have 3 sides and 3 corners but that sometimes the triangle does not point up. Remind them that no matter how a shape has been turned around, it is still the same shape. Give them triangles to turn around.

Solutions

Children's coloring should show the following shapes:

- a square, a rectangle, a circle, a triangle, and a hexagon
- a sphere, a cube, a cone, and a cylinder


Name: _____ LESSON 12 SESSION 2

Practice Naming Shapes

Check children's work.
Possible shapes are shown.

Observe as you ask children to color different shapes on the page. Have children color a square, a rectangle, a circle, a triangle, and a hexagon. Then have children color a sphere, a cube, a cone, and a cylinder. Have children color the rest of the picture.

Fluency Practice

Recognize flat shapes.

Materials For each child: Activity Sheet *Flat Shapes*, 5 crayons (1 blue, 1 green, 1 yellow, 1 red, 1 purple)

- Have children tell what shapes they see on the Activity Sheet. Have them put a finger on a circle and then a square, a rectangle, and a hexagon.
- Tell children to color all the circles blue. Have them color all the squares green and all the hexagons yellow.
- Instruct children to color all the rectangles red. Encourage them to find all the rectangles in different sizes and orientations.
- Ask children to color the triangles purple. Prompt them to see that all shapes with 3 sides are triangles.

Identify numbers to 7.

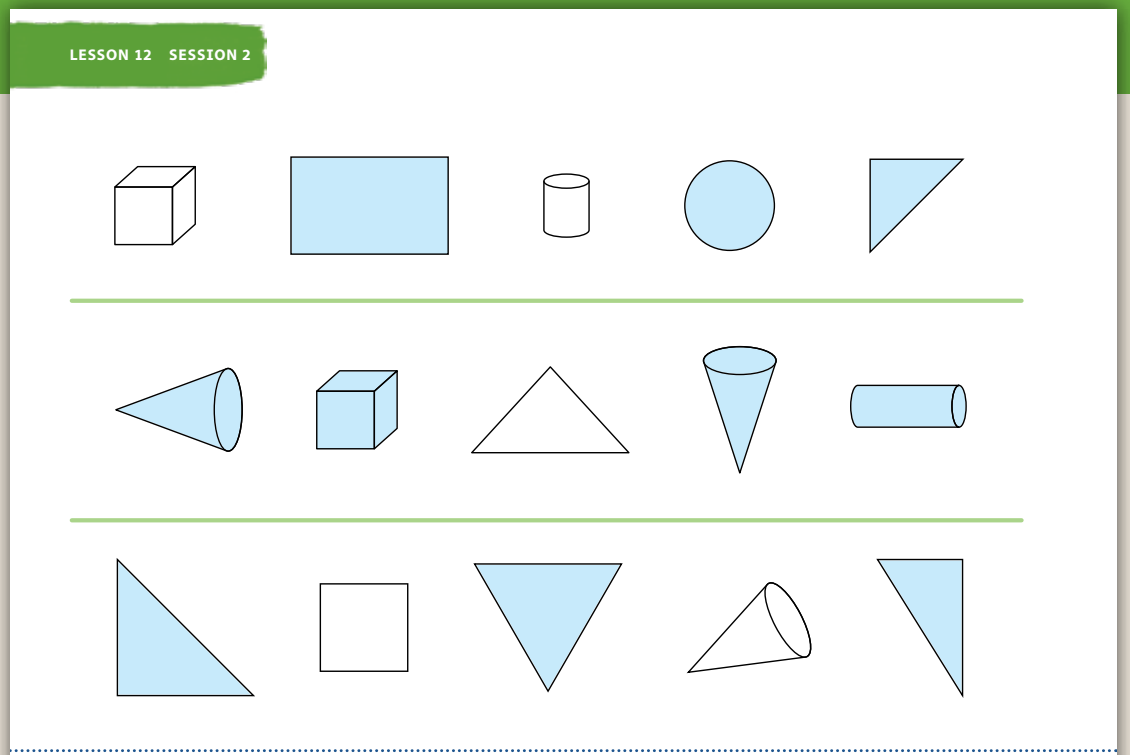
Materials For each pair: 7 counters, 1 cup

- Have one partner put some or all of the counters in the cup and then quickly pour them on the table.
- The other partner quickly counts the counters and says the number aloud.
- The children trade roles and repeat until each partner has had a chance to count at least four different amounts.

Solutions

Children identify and sort shapes into given categories and then color them. In the top row children color the flat shapes, in the middle row they color the solid shapes, and in the bottom row they color the triangles.

- Rectangle, circle, and triangle colored
  Medium
- 2 cones, cube, and cylinder colored
  Medium
- 3 triangles colored
  Medium



ELL English Language Learners: Differentiated Instruction

Prepare for Session 3
Use with *Connect It*.

Levels 1–3

Listening/Speaking To get children ready for ***Connect It***, use gestures to model *flat*. Have children show you a flat shape in the classroom. Then ask them to look for flat shapes on the page. Repeat for solid shapes.

Levels 2–4

Listening/Speaking To get children ready for ***Connect It***, use gestures to model *flat*. Have children show you a flat shape in the classroom. Then ask them to look for flat shapes on the page. Ask children to describe a flat shape: *The* _____ *has* _____. *The* _____ *is* _____.

Repeat for solid shapes.

Levels 3–5

Listening/Writing To get them ready for ***Connect It***, encourage children to use gestures to model *flat*. Have them show you a flat shape in the classroom. Then ask them to look for flat shapes on the page. Ask children to describe a flat shape using complete sentences. Repeat for solid shapes.

Have children create in their math journal a graphic organizer, such as a T-chart, to compare flat shapes and solid shapes.

LESSON 12

SESSION 3 Develop

Purpose In this session children differentiate between flat and solid shapes and identify the flat shapes by name.

Start

Connect to Prior Knowledge

Materials For each child: none, children use display materials; For display: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

Why Reinforce describing objects and sorting by color and shape.

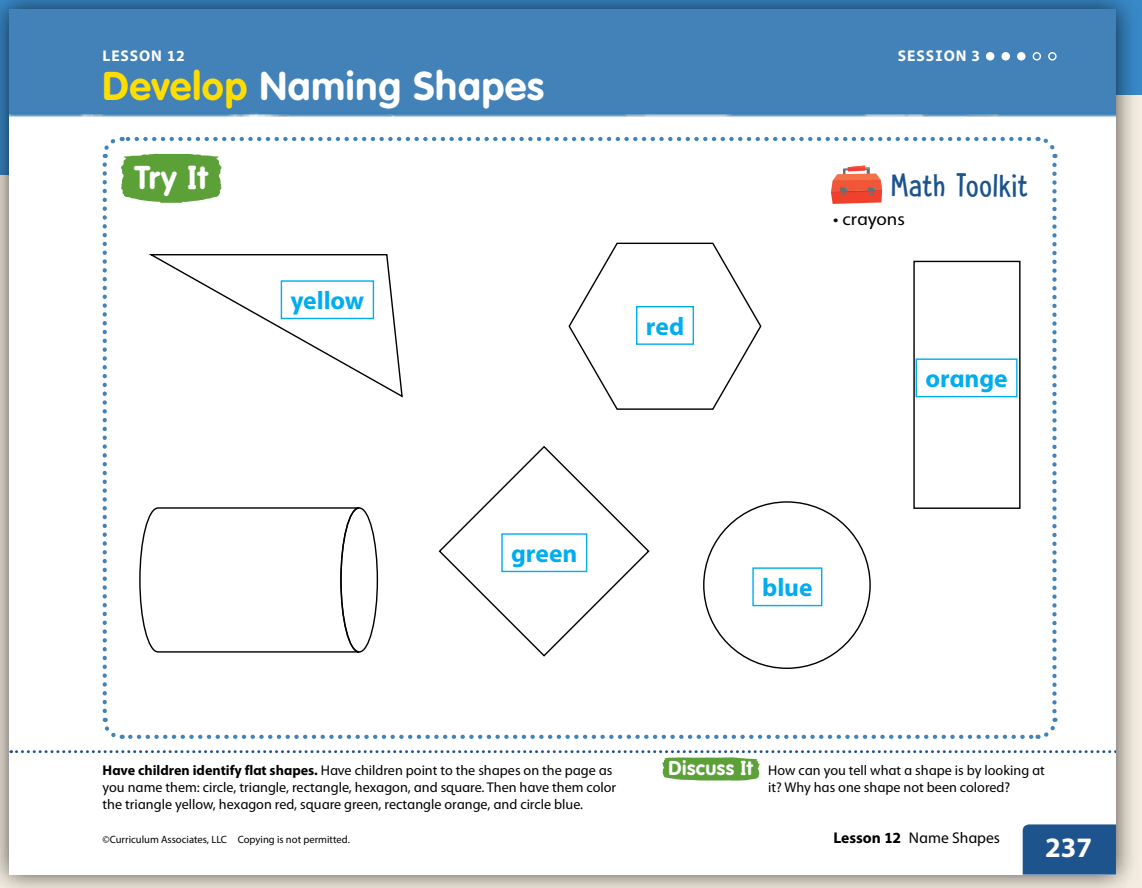
How Have one child at a time come to the front and group some of the objects you have on display. Ask children in the class to figure out the category that the objects have been sorted by. Repeat with several children and different categories. Then have children look at the slide and find as many ways to sort the shapes as they can.

Listen for Children use shape names, solids/flats, color, straight sides when they create a category to sort by.

Develop Language

Why Support understanding of the Latin roots *tri-* and *hex-* as they relate to the shapes triangle and hexagon.

How Draw a triangle and a hexagon. Ask children to count the sides of each shape. Tell children that *tri-* means "three" and *hex-* means "six." Guide children to complete these sentences: *A triangle has ____ sides. A hexagon has ____ sides.*


LESSON 12

Develop Naming Shapes

SESSION 3 ● ● ● ○ ○

Try It

Math Toolkit
• crayons

yellow

red

orange

green

blue

Have children identify flat shapes. Have children point to the shapes on the page as you name them: circle, triangle, rectangle, hexagon, and square. Then have them color the triangle yellow, hexagon red, square green, rectangle orange, and circle blue.

Discuss It How can you tell what a shape is by looking at it? Why has one shape not been colored?

Lesson 12 Name Shapes 237

Try It

Materials For each child: 6 crayons (1 yellow, 1 red, 1 orange, 1 green, 1 blue, 1 purple)

Explain to children that they will be finding the flat shapes on the page and then identifying them by name.

Support Partner Discussion

Have children tell a partner how they will identify each of the shapes. Support as needed with questions such as:

- *What do you know?*
- *What did you notice about your partner's approach?*

Select and Sequence Solutions

Select children to present how they differentiated the shapes. Choose children who identified:

- the flat shapes by them not being a block
- shapes by number of straight sides
- shapes by number of corners

Discuss It

Support Whole Class Discussion

Compare children's methods for identifying the shapes. Have children point to the shapes on the page as you name them: circle, triangle, rectangle, hexagon, and square. Then have children color the triangle yellow, hexagon red, rectangle orange, square green, and circle blue.

Common Misconception **If** children cannot find the square because it looks like a diamond shape, **then** give them a square piece of paper and have them turn the square until it looks like the picture.

Ask *How can you tell what a shape is by looking at it?*

Listen for I look to see if it is a block (solid shape) or a flat shape. I look for straight sides and count them. I look for corners and count them. I know the round flat shape is a circle. I know a hexagon has 6 sides.

Ask *Why has one shape not been colored? What other shapes could be on the page and would also not be colored?*

Listen for It is a solid shape, and we found flat shapes. A sphere. A cone. A cube.

Hands-On Activity

Explore solid shapes.

If . . . *children are unsure about identifying and naming three-dimensional shapes*

Then . . . *use the activity below to become more familiar with three-dimensional shapes.*

Materials For each child: none, children use display materials; For display: solids of different sizes, such as a tennis ball, a beach ball, a marble, a number cube, a cube tissue box, a cube wooden block, an ice cream cone, a party hat, a water cooler cup, a soup can, a coffee can, and a tuna can

- Display all the solids. Give children an opportunity to look at and touch them.
- Hold up one object and have children name its shape. Then invite a child to find another solid with the same shape.
- Repeat the process with each type of solid. Say: *A shape can be smaller or larger, but the name of the shape does not change.*

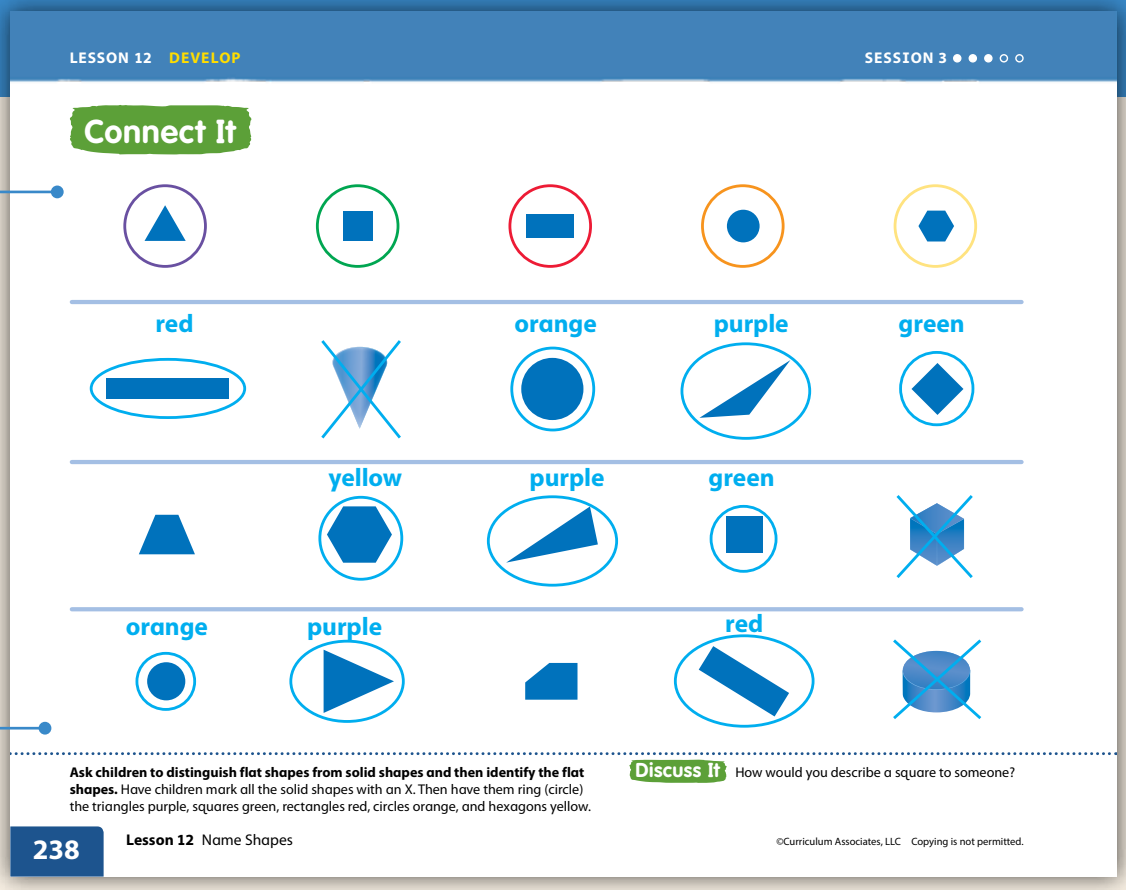
Connect It

Support Whole Class Discussion

Have children identify the solid shape in each row and mark it with an X. Then have them identify the flat shapes along the top of the page and the colors of the rings around them. Have children ring (circle) the triangles purple, squares green, rectangles red, circles orange, and hexagons yellow. When all the problems have been completed, have several children share their answers and thinking.

Ask *How do you know what a shape is if it has been turned? Does the name of a shape change if it is placed in a different way?*

Listen for I can look at the number of sides. I can look at the number of corners. I can look at whether the shape is solid or flat. The name of the shape does not change as long as it has the same number of sides and corners.



Deepen Understanding

Differentiating Shapes

SMP 3 Construct arguments.

When children are completing the page, they should be able to communicate their reasoning for coloring shapes a certain color, ringing some and not others, and crossing shapes out, as well as leaving some shapes untouched.

Ask *Why are there some shapes that are not ringed or crossed out?*

Listen for They are not crossed out because they are flat shapes. They are not ringed because they are not one of the shapes at the top of the page.

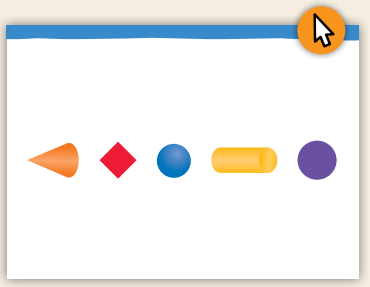
Ask *Why do the triangles not all look the same?*

Listen for Triangles can be different shapes and sizes. All triangles must have 3 straight sides and 3 corners.

Generalize Prompt children to recognize that there are many ways to describe and sort shapes.

Close: Exit Ticket

Have children look at the shapes on the slide. Ask questions such as: *What colors are the solid shapes? What color is the square? What color is the cone?*



Listen for Children should identify each of the shapes; for example, the solid shapes are orange, blue, and yellow.

Common Misconception **If** children confuse shapes, **then** review the attributes of each shape. Focus on the differences that help us to identify the shape. Remind children of the difference between a solid shape and a flat shape. Give them attribute blocks and geometric solids to look at and feel.

Solutions

For each problem, children:

- mark all the solid shapes with an X
- draw a red ring around the triangles
- draw a green ring around the squares
- draw an orange ring around the circles

On the second page, children also:

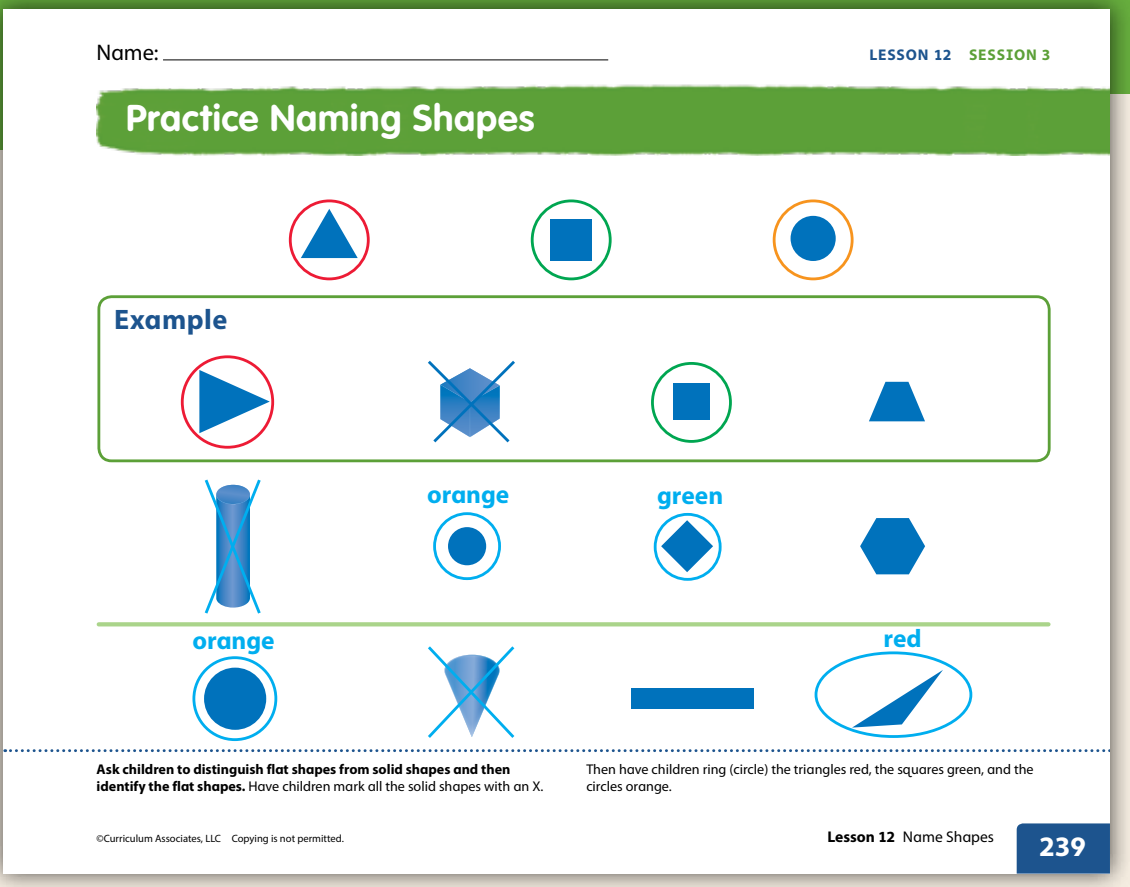
- draw a purple ring around the rectangles
- draw a yellow ring around the hexagons

Example

Cube marked with an X, triangle ringed red, square ringed green
Basic

Problems

- Cylinder marked with an X, circle ringed orange, square ringed green
  Medium
- Cone marked with an X, circle ringed orange, triangle ringed red
  Medium


Name: _____ LESSON 12 SESSION 3

Practice Naming Shapes

Example

orange green

orange red

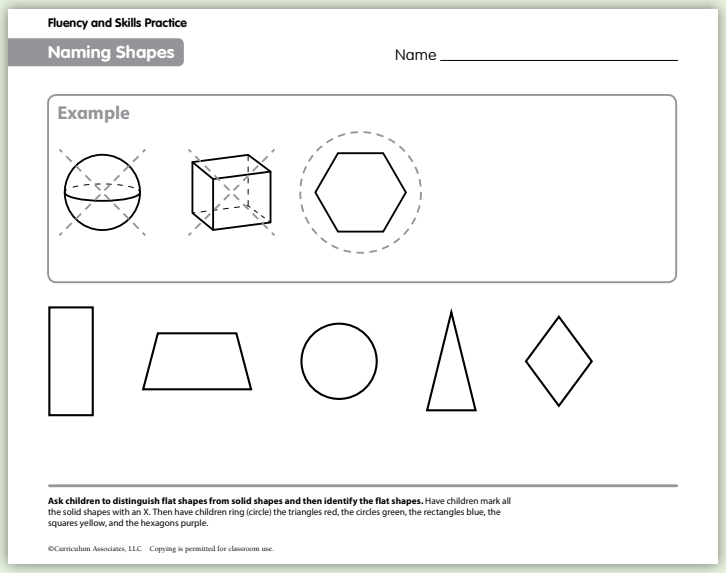
Ask children to distinguish flat shapes from solid shapes and then identify the flat shapes. Have children mark all the solid shapes with an X. Then have children ring (circle) the triangles red, the squares green, and the circles orange.

Fluency & Skills Practice

Teacher Toolbox

Assign *Naming Shapes*

In this activity children practice distinguishing flat shapes from solid shapes and naming flat shapes. Children should be able to recognize real-world examples of triangles, circles, rectangles, squares, and hexagons. For example, children may notice that a clock is a circle, a pennant flag is a triangle, or a bulletin board is a rectangle.


Fluency and Skills Practice

Naming Shapes

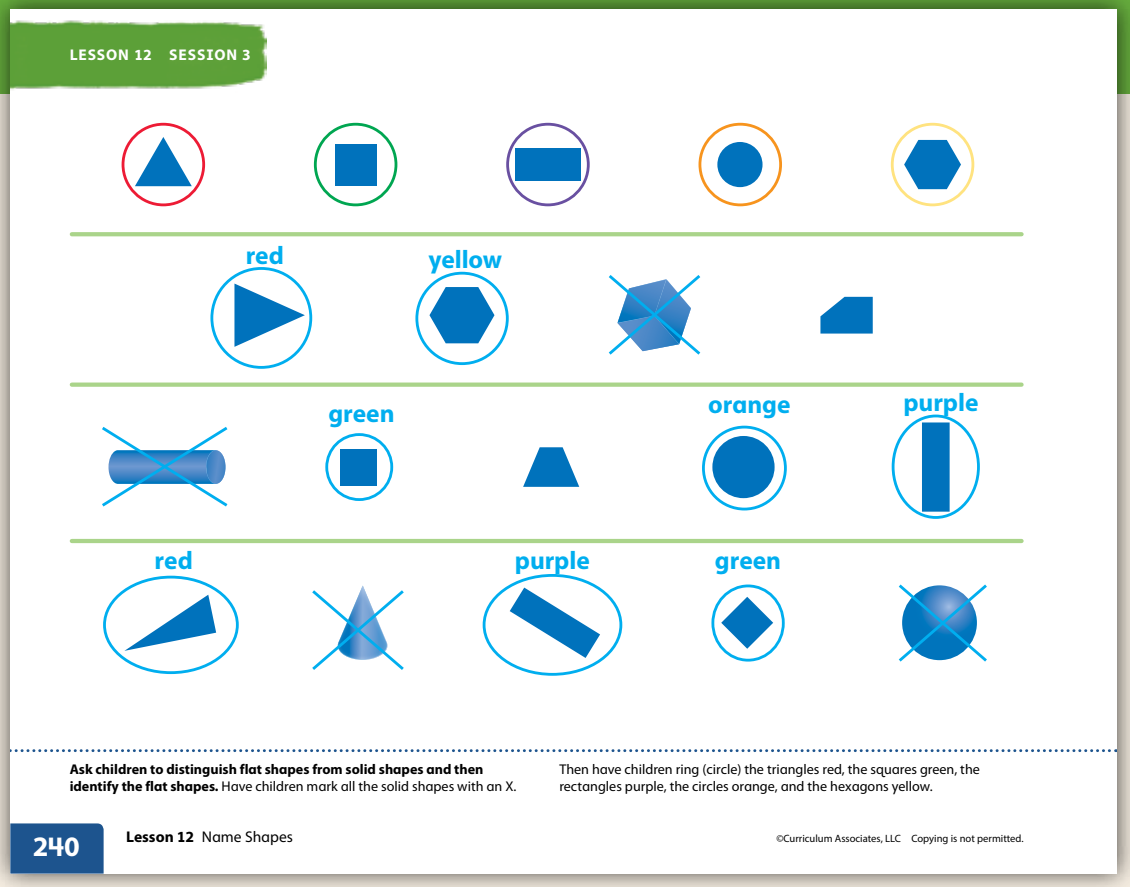
Name _____

Example

Ask children to distinguish flat shapes from solid shapes and then identify the flat shapes. Have children mark all the solid shapes with an X. Then have children ring (circle) the triangles red, the circles green, the rectangles blue, the squares yellow, and the hexagons purple.

Solutions

- Cube marked with an X, triangle ringed red, hexagon ringed yellow
  Medium
- Cylinder marked with an X, square ringed green, circle ringed orange, rectangle ringed purple
  Medium
- Cone and sphere marked with an X, triangle ringed red, rectangle ringed purple, square ringed green
  Medium



ELL **English Language Learners: Differentiated Instruction**

Prepare for Session 4
Use with *Apply it*.

Levels 1–3

Listening/Speaking Provide children with counters to use with ***Apply It***. Have children point to the orange. Ask: *Is this a sphere?* Point to other objects on the page and ask: *Is this a sphere, like the orange?* If the answer is yes, model placing a counter on the object. Repeat the activity with the cones, cylinders, and cubes. Have children tell whether they are flat or solid shapes.

Levels 2–4

Listening/Speaking Provide children with counters to use with ***Apply It***. Have children point to the orange. Ask: *Is this a sphere?* Have children find other spheres on the page. Have them put a counter on each of the spheres. Repeat the activity with the cones, cylinders, and cubes. Have children complete a sentence that describes one of the shapes: *The _____ is a _____ shape.*

Levels 3–5

Listening/Speaking Partner children to complete ***Apply It***. Ask them to take turns finding the different solid shapes on the page. Encourage children to talk about the shapes. Guide them with questions: *Do you see flat shapes in the picture? What types of shapes do you see? How do you know?*

LESSON 12

SESSION 4 Refine

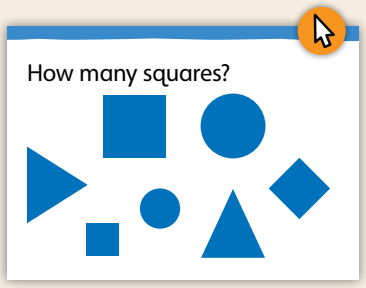
Purpose In this session children name and identify solid shapes, both in the environment and as geometric figures. Children also distinguish flat shapes from solid shapes.

Start

Develop Fluency

Why Identify flat shapes. Sort and count with one-to-one correspondence.

How Have children identify the shapes on the slide. Then ask them to count how many squares they see. Remind children that no matter how a shape is turned, the shape does not change.



Solution 3 squares

Apply It

Materials For each child: 5 counters, 4 crayons (1 purple, 1 red, 1 green, 1 orange)

For the first page, explain to children that they will name the shape of an object and then find other objects that are the same shape.

Ask children to name each of the objects on the page. Then ask them to name the shape of the orange.

When there is agreement that the shape is a sphere, ask children to find other shapes on the page that are spheres and place a counter on each one.

Ask *What other objects are spheres? How do you know?*

Listen for Children might mention similar items to the ones pictured, such as a soccer ball. They might look for objects they can see in the classroom, such as a globe. Their explanations should focus on similarities among the objects.

Repeat with the party hat (cone), the can of paint (cylinder), and the tissue box (cube).

Encourage children to explain beyond saying, *They have the same shape.* They should explain what it is about the shape that makes them look similar.

Discuss It

Support Whole Class Discussion

Encourage children to explain how they identified spheres. Then have them find other solid shapes.

Ask *How can you tell the different solid shapes apart?*

Listen for Children might describe certain attributes of the shapes informally. They may also reference an object, for example, *Shapes that look like a ball are spheres.*

Finally, have children count the total number of objects shown on the page and write the number.

For problems on the second page, tell children they will find the solid shapes shown at the top of the page.

Have children mark all of the flat shapes with an X. Then have them ring the cubes purple, cones red, spheres green, and cylinders orange.

Support Whole Class Discussion

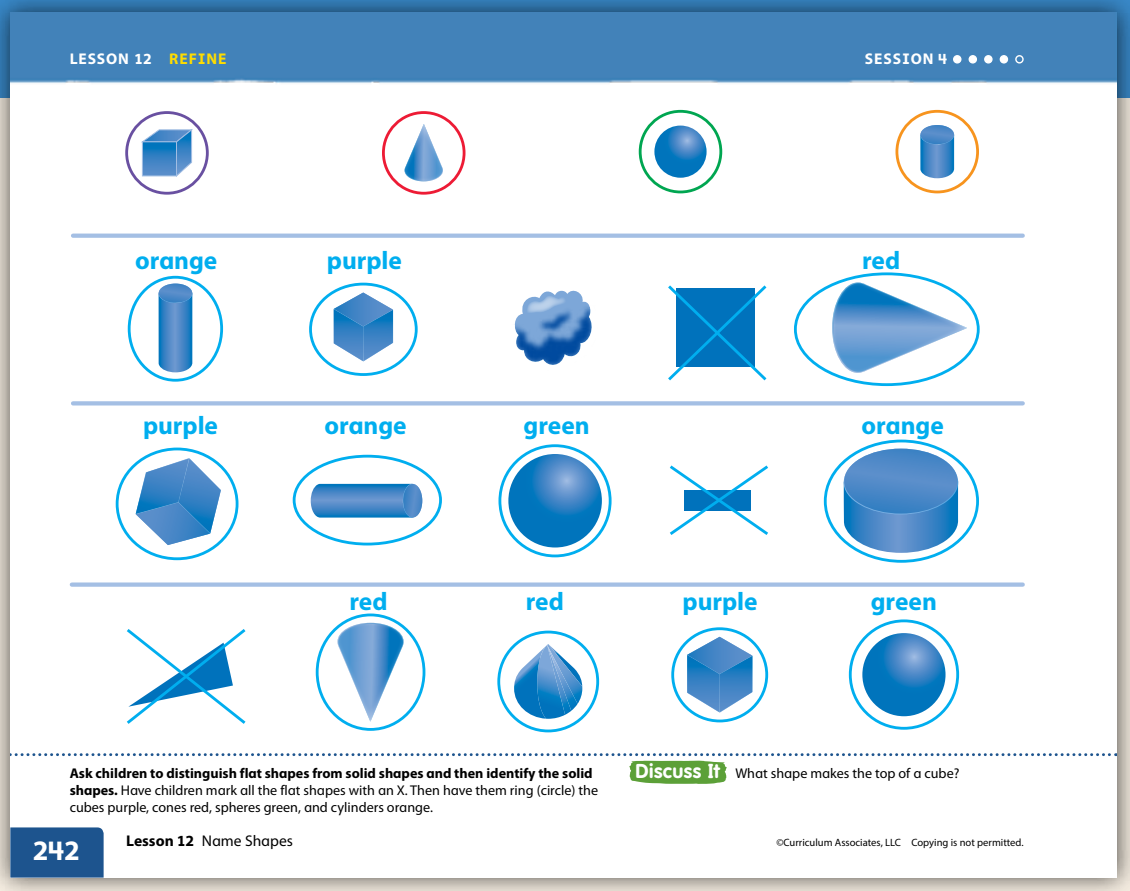
Discuss answers by row. In particular, discuss shapes that are oriented differently from those at the top of the page and how children still know their shape.

Ask *How do you know which shapes are solid?*

Listen for Responses should indicate (informally) that a solid shape has depth or height and a flat shape does not, and that a solid shape looks more like an object that can be held.

Ask *What shape makes the top of a cube?*

Listen for Square. Children who have difficulty identifying this may need more experience with solid shapes.



Error Alert

If the error is . . .	Children may . . .	To support understanding . . .
using a two-dimensional (flat) name for a three-dimensional shape	not understand the difference between flat and solid shapes.	Have the child trace different parts of the solid shape to see that the flat shape is a part of the solid shape, but that the solid shape has its own name.
identifying a non-square rectangle as a square	not see the difference between two shapes.	Make a square on a geoboard and prompt the child to see that each side is the same length. Make a rectangle on the geoboard. Point out that only the opposite sides are the same length.

Error Alert For children who are still struggling, use the chart above to guide remediation.

After providing remediation, check children's understanding by displaying a triangle, a rectangle, a circle, a sphere, and a cone and asking them to name each shape.

Close: Exit Ticket

Check for Understanding

Materials For each child: attribute blocks (triangle, square, rectangle, circle, hexagon); For display: geometric solids (cube, cone, cylinder, sphere); For remediation: geoboard

Ask children to name each shape.

Listen for Children correctly name each shape: triangle, square, rectangle, circle, hexagon, cube, cone, cylinder, sphere.

Solutions

For each problem, children:

- mark all the flat shapes with an X
- draw a purple ring around the cubes
- draw a red ring around the cones
- draw a green ring around the spheres
- draw an orange ring around the cylinders

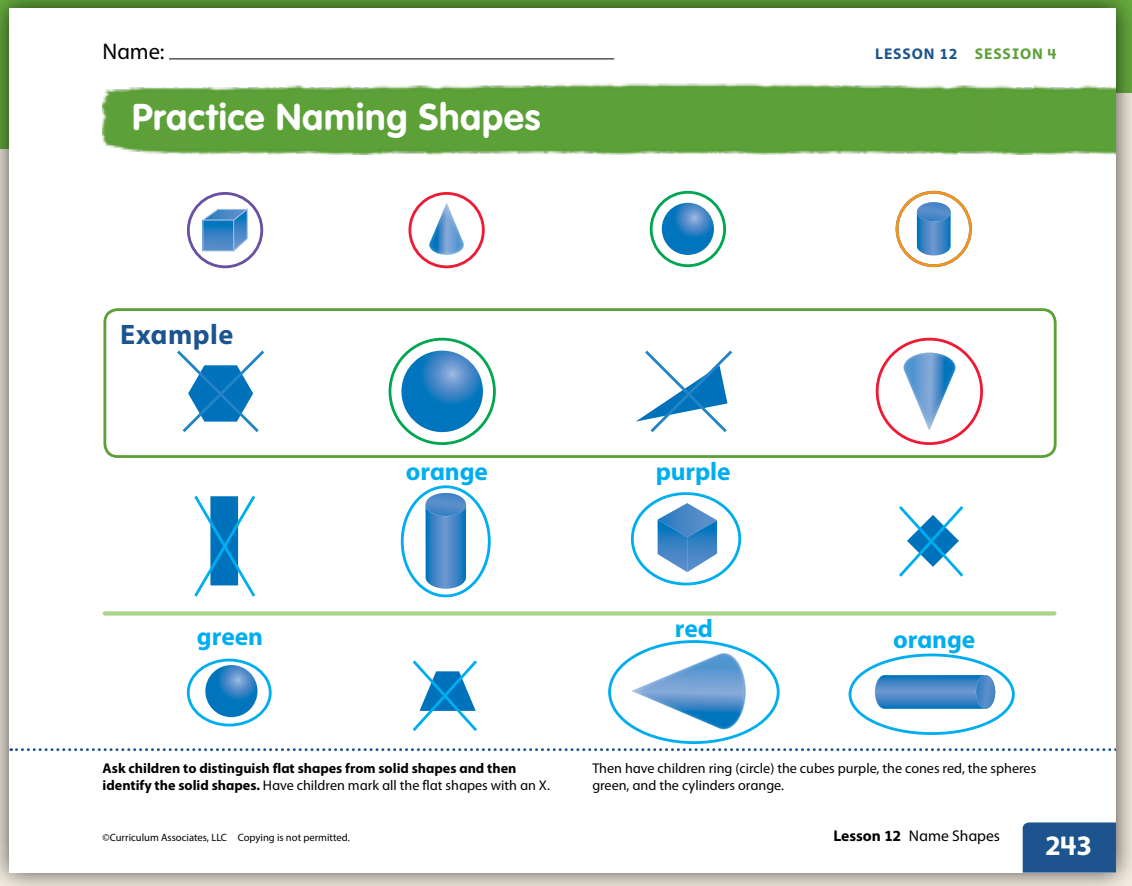
Example

Hexagon and triangle marked with an X, sphere ringed green, cone ringed red
Basic

Problems

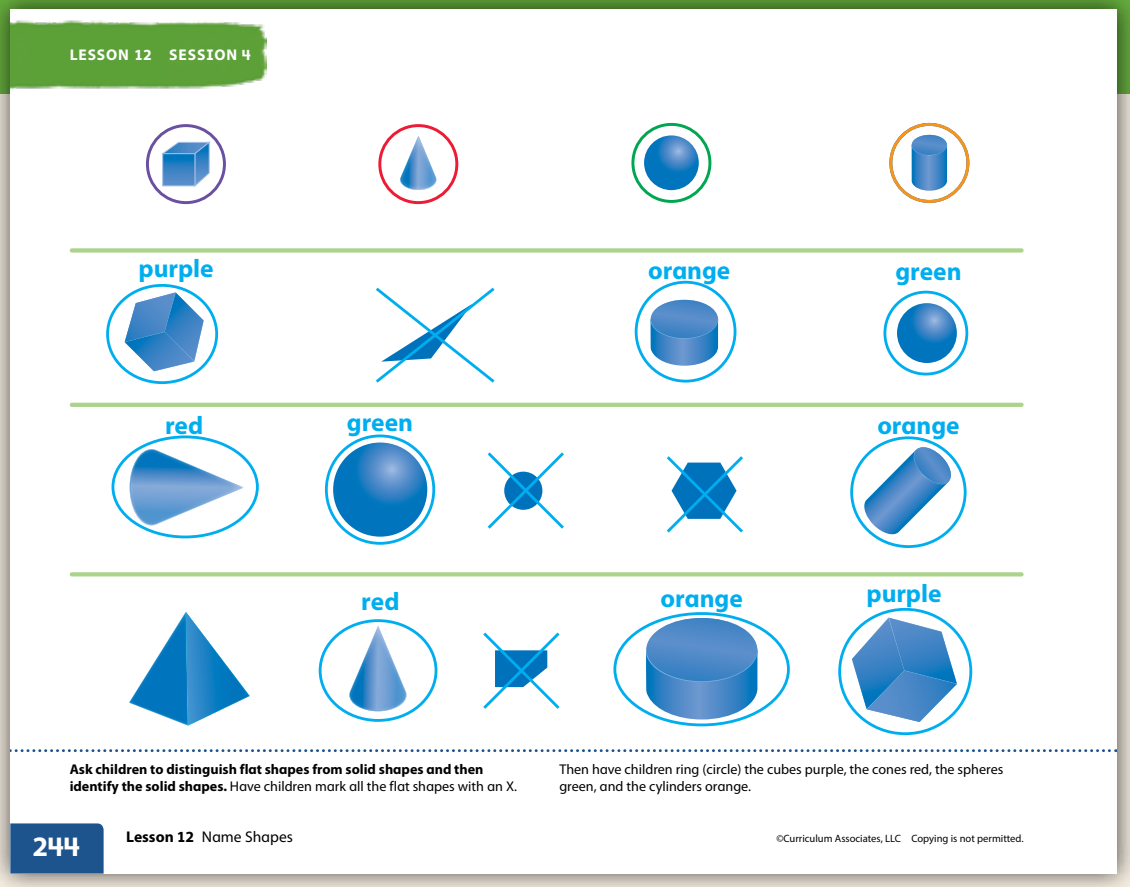
- Rectangle and square marked with an X, cylinder ringed orange, cube ringed purple
  Medium

- Trapezoid marked with an X, sphere ringed green, cone ringed red, cylinder ringed orange
  Medium



Solutions

- Triangle marked with an X, cube ringed purple, cylinder ringed orange, sphere ringed green
  Medium
- Circle and hexagon marked with an X, cone ringed red, sphere ringed green, cylinder ringed orange
  Medium
- Pentagon marked with an X, cone ringed red, cylinder ringed orange, cube ringed purple
  Medium



LESSON 12

SESSION 5 Refine

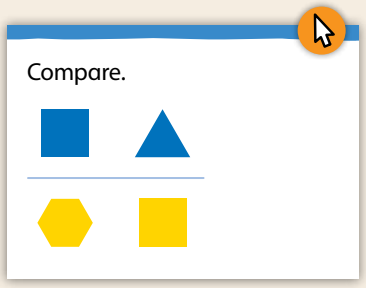
Purpose In this session children match flat and solid shapes to a description. They then identify flat shapes in a picture.

Start

Develop Fluency

Why Practice comparing numbers to 10.

How Have children look at the blue shapes. Ask how many sides each shape has. Then have children compare the numbers to find which shape has a greater number of sides. Repeat with the yellow shapes.



Solution 4 is greater than 3. 6 is greater than 4.

Apply It

Materials For each child: 5 crayons (1 purple, 1 green, 1 red, 1 blue, 1 yellow); For display: bag of shapes that includes a circle, square, rectangle, triangle, hexagon, cube, cone, cylinder, and sphere

Tell children they will match flat and solid shapes to a description.

For the first page, look at the shapes and have children say the name of each shape.

Explain that you have a bag with these shapes in it. Have a volunteer take a shape from the bag without showing the rest of the class. The child describes the shape without saying its name. Children draw a ring around the shape they think matches. Show the shape drawn from the bag and set it aside.

Repeat with another volunteer.

For the second page, have children identify shapes in the picture and color them according to the key at the side of the page. Remind children to look for different kinds of rectangles and triangles.

Discuss It

Support Whole Class Discussion

When children have finished the first page, invite them to share which shapes they found easy or difficult to recognize.

Ask *What was most helpful when the shapes were being described?*

Listen for Number of sides. Whether the shape was flat or solid. What type of object the shape looked like.

When children have finished the second page, have them explain how they identified the shapes.

Ask *How did you find each shape?*

Listen for Reasoning should include anything children have learned about attributes of the flat shapes. Some children may mention finding shapes that look like the ones on the left side of the page.

Ask *I could say there are 4 triangles. How is this true?*

Listen for Children identify the extra triangle as the large triangle formed by the 2 small adjacent triangles.

Repeat for 6 rectangles that are not squares (the extra 2 rectangles being one formed by the 2 adjacent squares and one formed by the square and the adjacent rectangle).

Differentiated Instruction

PERSONALIZE

i-Ready

Provide children with opportunities to work on their personalized instruction path with *i-Ready* Online Instruction to:

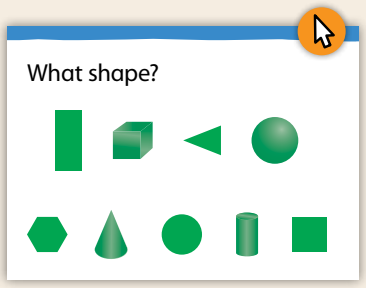
- fill prerequisite gaps
- build up grade-level skills

Close: Exit Ticket

Math Journal

Materials For each child: copy of Close slide

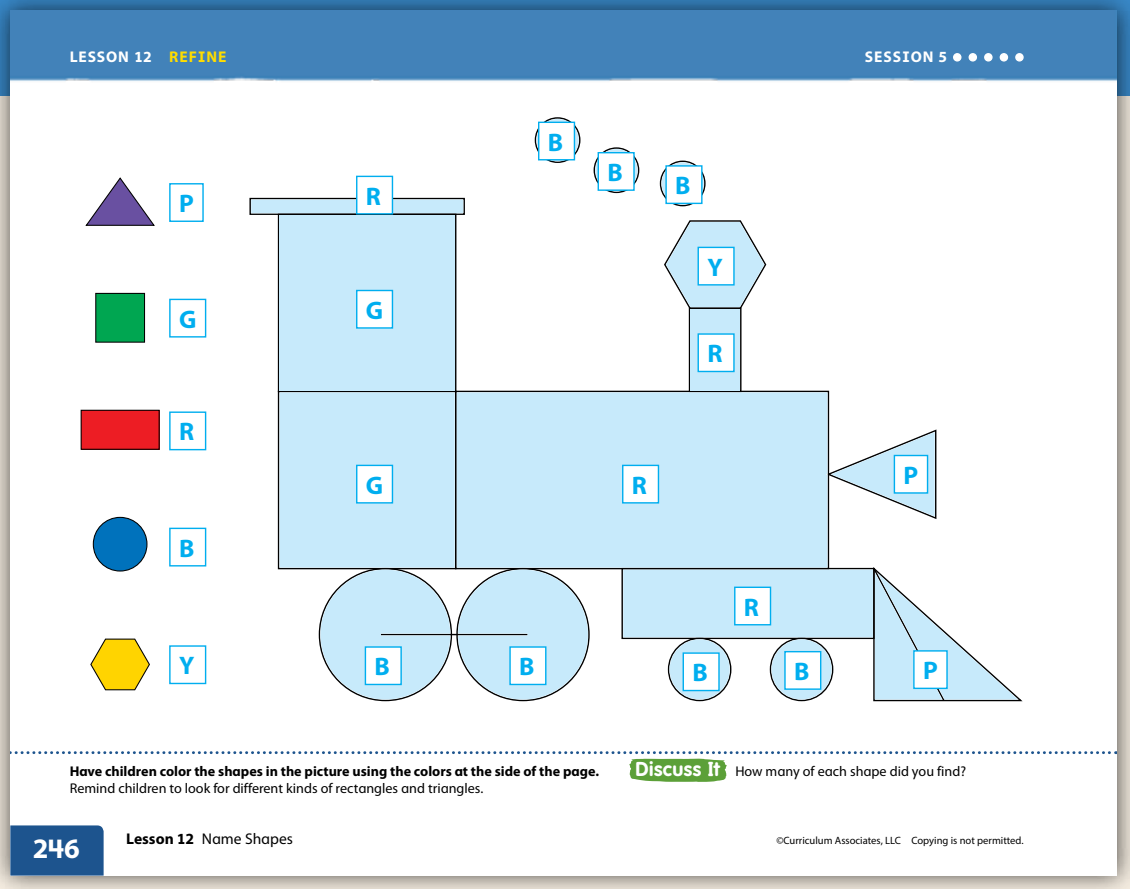
Children work in pairs. Have one partner choose a shape from the slide to describe. The other partner names the shape described. Then have children ring (circle) the cube.



Solution Cube circled

Listen for Children describe shapes using *solid, flat, straight, curved, sides, corners*. Children correctly name shapes.

Error Alert **If** children call a rectangle a square, **then** remind them that a square is a special type of rectangle, which is why it has a different name. Show them a rectangle and a square side by side so they can compare.



RETEACH

Hands-On Activity

Go on a shape walk.

Children struggling with identifying shapes

Will benefit from additional work with recognizing shapes in the environment

Materials For each child: sheet of paper, crayon

- Take children on a shape walk outdoors, around the school, or through the classroom. Have children look for examples of each shape they studied in the lesson—circle, triangle, rectangle, square, hexagon, sphere, cube, cone, and cylinder. Point out examples to help children as needed if there are certain shapes they are particularly struggling with.
- Have children draw examples of each shape on their paper.
- After the walk, have children share their drawings and tell what shapes they saw. Encourage them to describe their shapes using attributes.

EXTEND

Challenge Activity

Build shapes.

Children who have achieved proficiency identifying shapes

Will benefit from building those shapes

Materials For each pair: toothpicks, pipe cleaners, modeling clay, paper; For display: a list, picture, or example of each shape used in the lesson

- Invite children to work in pairs to build both flat and solid shapes.
- Encourage pairs to make as many of the shapes as they can from the materials.
- Have children show and describe their shapes to the class and explain how they made each one.

Lesson Overview

LESSON 13

See Position and Shape

Lesson Objectives

Content Objectives

- Use position words to describe relative positions of objects in the environment.
- Describe objects in the environment using shape words.

Language Objectives

- Point to an object in the classroom and tell its position relative to another object.
- Describe the position of an object in relation to another object using key terms such as *above, below, beside, in front of, behind,* and *next to.*
- Draw shapes and objects in given positions from verbal instructions.
- Draw lines to connect objects with the same shape and tell the name of the shape.

Prerequisite Skills

- Sort objects into given categories.

Standards for Mathematical Practice (SMP)

SMPs 1, 2, 3, 4, 5, and 6 are integrated in every lesson through the *Try-Discuss-Connect* routine.*

In addition, this lesson particularly emphasizes the following SMPs:

2 Reason abstractly and quantitatively.

5 Use appropriate tools strategically.

6 Attend to precision.

*See page 1i to see how every lesson includes these SMPs.

Lesson Vocabulary

- **above, behind, below, beside, next to, in front of** words to describe the position of an object relative to another object.

Review the following key terms.

- **circle** a flat shape with no sides and no corners.
- **cone** a solid shape that slopes from a circular face to a point.
- **cube** a solid shape with 6 square faces and all edges of equal length.
- **cylinder** a solid shape like a can.
- **rectangle** a flat shape with 4 sides and 4 square corners. The opposite sides have the same length.
- **sphere** a solid shape like a ball.
- **square** a flat shape with 4 straight sides of equal length and 4 square corners.
- **triangle** a flat shape with 3 straight sides and 3 corners.

Learning Progression

In Kindergarten children develop geometric concepts and spatial reasoning from multiple experiences with shapes in the environment. Children have been using shape and position words to informally describe scenes at the beginning of each lesson. This lesson consolidates that work with a formal presentation of various position words including, but not limited to, *above, below, beside, in front of, behind,* and *next to.*

In this lesson children apply shape names to objects in the environment and describe the position of objects relative to each other.

In Grade 1 children will continue to describe and define shapes by their attributes and build on this understanding to build composite shapes and partition rectangles into 2 and 4 equal parts.

Lesson Pacing Guide

Whole Class Instruction

SESSION 1 Explore *45–60 min*	**Seeing Position and Shape** • Start *5 min* • Try It *20 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 251–252 **Building Fluency** Use throughout lesson
SESSION 2 Develop *45–60 min*	**Seeing Position and Shape** • Start *5 min* • Try It *5 min* • Discuss It *15 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 255–256 **Fluency Practice** Play "I Spy" to Practice Position Words Count and Recognize Numbers to 10
SESSION 3 Develop *45–60 min*	**Seeing Position and Shape** • Start *5 min* • Try It *10 min* • Discuss It *10 min* • Connect It *15 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 259–260 **Fluency** Seeing Position and Shape
SESSION 4 Refine *45–60 min*	**Seeing Position and Shape** • Start *5 min* • Apply It *10 min* • Discuss It *25 min* • Close: Exit Ticket *5 min*	**Additional Practice** Lesson pages 263–264
SESSION 5 Refine *45–60 min*	**Seeing Position and Shape** • Start *5 min* • Apply It *10 min* • Discuss It *5 min* • Small Group Differentiation *20 min* • Close: Exit Ticket *5 min*	**Lesson Quiz** or **Digital Comprehension Check**

Lesson Materials

Lesson *(Required)*

Per child: 1 counter, 1 pencil, 1 glue stick, paper, 6 classroom objects (such as pencil, crayon, eraser, marker, scissors, glue stick), copy of Start slide (Session 5), copy of Close slide (Session 5)
Per pair: geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)
For display: number cube, cylinder, circle, rectangle, attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere), party hat, tennis ball, cardboard tube
Activity Sheet: Object Cards

Activities

Per child: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere), 4 crayons (1 red, 1 blue, 1 yellow, 1 purple), paper
Per pair: 10 counters
For display: number cube, paper plate, book, soup can, ball
Activity Sheet: Number Cards 0 to 10: Small

Math Toolkit counters, attribute blocks, geometric solids, object cards

Teacher Toolbox

Small Group Differentiation

RETEACH

Tools for Instruction

Grade K
- Lesson 13 Shape and Position of Objects

REINFORCE

Math Center Activities

Grade K
- Lesson 13 Position and Shape Vocabulary
- Lesson 13 Shape Bingo

EXTEND

Enrichment Activity

Grade K
- Lesson 13 Where Is It?

i-Ready

Independent Learning

PERSONALIZE

i-Ready Lesson*

Grade K
- Left and Right

*We continually update the Interactive Tutorials. Check the Teacher Toolbox for the most up-to-date offerings for this lesson.

Connect to Family, Community, and Language Development

The following activities and instructional supports provide opportunities to foster school, family, and community involvement and partnerships.

Connect to Family

Use the **Family Letter**—which provides background information, math vocabulary, and an activity—to keep families apprised of what their child is learning and to encourage family involvement.

Goal

The goal of the Family Letter is to introduce position language and use it to talk about shapes.

- Learning position language will prepare children for daily activities that require describing the location of objects and places.

Activity

Look at the Seeing *Position and Shape* activity and adjust it if necessary to connect with children.

Math Talk at Home

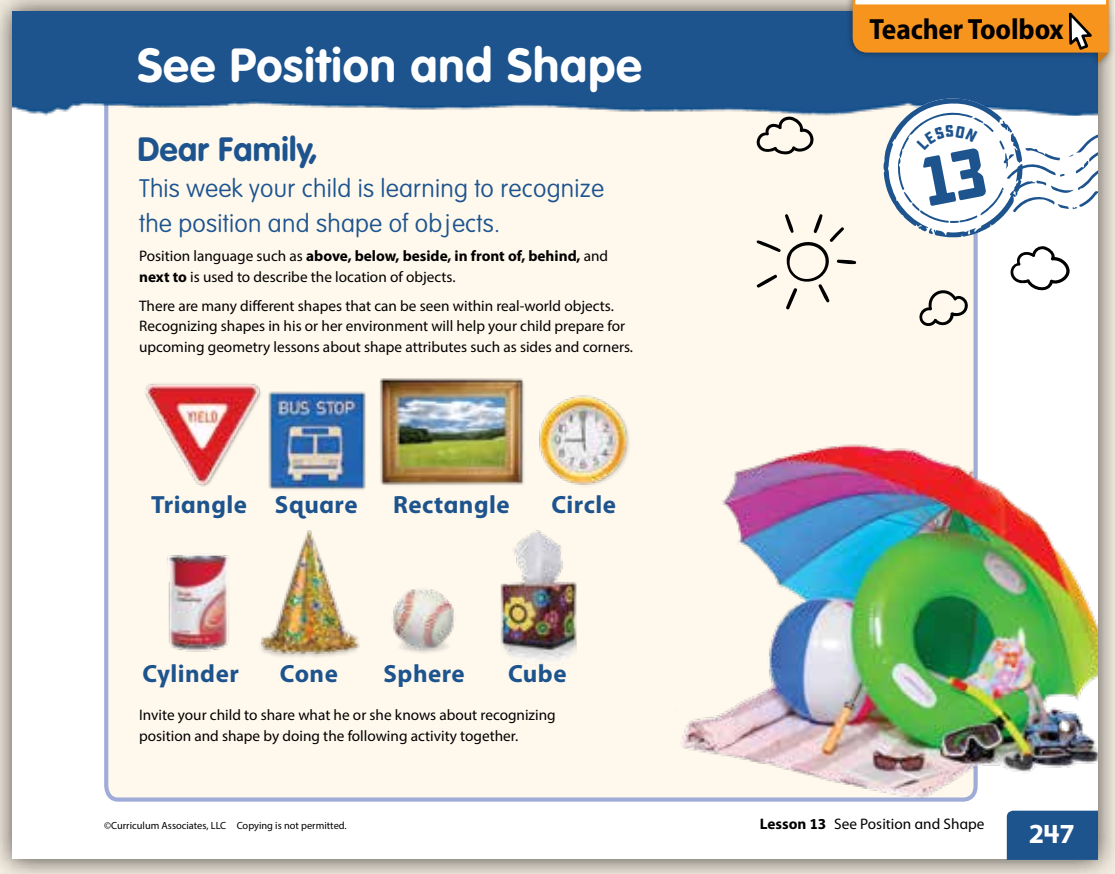
Encourage children to play I Spy with a family member. The family member gives clues that name or describe a shape and where they see it. Children think about the clues and find the object.

Conversation Starters Below are additional conversation starters children can write in their Family Letter or math journal, with your guidance, to engage family members.

- *What shape do you see?*
- *Where do you see it?*
- *Is it in front of something?*
- *Is it behind something?*
- *Is it next to another shape?*

Available in Spanish

Teacher Toolbox



See Position and Shape

Dear Family,

This week your child is learning to recognize the position and shape of objects.

Position language such as **above, below, beside, in front of, behind,** and **next to** is used to describe the location of objects.

There are many different shapes that can be seen within real-world objects. Recognizing shapes in his or her environment will help your child prepare for upcoming geometry lessons about shape attributes such as sides and corners.

Invite your child to share what he or she knows about recognizing position and shape by doing the following activity together.

LESSON 13

Activity Seeing Position and Shape

Do this activity with your child to practice recognizing positions and shapes.

- Play an "I Spy" game focusing on the position and shape of household objects. Describe where you see a shape and have your child try to find it. You might walk around to different rooms in the house, or you may choose to gather a collection of objects to display together in ways that demonstrate position words such as *above, below, beside, in front of, behind*, and *next to*.
- For example, to describe a clock, you might say: *I spy a circle above a bookshelf*. Your child looks around to try to find the circle you are thinking of. If your child guesses a different circle, you can say something like: *That is a circle, but it is not the circle I picked. The circle I picked is above a bookshelf*. Have your child continue to guess until he or she finds the object you described.
- Take turns asking and answering "I Spy" questions about household objects shaped like squares, rectangles, triangles, circles, cubes, cones, cylinders, and/or spheres. Household objects you might refer to include napkins, doors, shapes on food packages, plates, toy blocks, ice cream cones, soup cans, and balls.

Connect to Community and Cultural Responsiveness

Use these activities to connect with and leverage the diverse backgrounds and experiences of all children.

Session 1 **Use with *Connect It*.**

- Tell children that some people travel or camp in campers. Describe a camper and invite volunteers to describe campers they have seen. Display a picture of a camper and talk about the location of items in the camper. For example: *Where do people put the bags? Where is the bed? Where is the table? Where are the chairs?*

Session 2 **Use anytime during the session.**

- List position words on the board and tell children they can use the words to describe where different items are. Have children name favorite items, such as games, toys, or snacks. Guide them to describe the location of favorite items in the neighborhood store. Model examples: *I like cereal. The cereal is next to the granola bars. I also like books. The books are in front of the cashier.* Ask: *Where do you find the books for children? Where are the apples? Are the cookies next to the fruit?*

Session 3 **Use anytime during the session.**

- Display a photograph of a widely known location in the community, such as a playground, library, or grocery store. Work with children to generate sentences using the position words *beside, next to, above, below, behind,* and *in front of* to describe the picture.

Connect to Language Development

For ELLs, use the Differentiated Instruction chart to plan and prepare for specific activities in every session.

English Language Learners: Differentiated Instruction

Prepare for Session 1
Use with *Try It*.

Levels 1–3	Levels 2–4	Levels 3–5
Listening/Speaking Introduce the position words used in ***Try It***. Invite two children to come to the front of the class. Have them stand next to each other. Say: *Pedro is next to Abdul.* Have children repeat. Continue with volunteers to model the position terms *beside, in front of,* and *behind*. Use objects to model *above* and *below*. Have children repeat each term after you. Pair children. Say a position word and have them repeat it and model it with their partner. Ask them to use objects to model *above* and *below*.	**Listening/Speaking** To introduce the position words used in ***Try It***, write the words *above, below, beside, in front of, behind,* and *next to* on the board. Say each word and repeat with children. Invite volunteers to help you model the terms. Use objects to model *above* and *below*. Pair children. Have them take turns saying the words and modeling the locations.	**Listening/Speaking** To introduce the position words used in ***Try It***, write the words *above, below, beside, in front, behind,* and *next to* on the board. Say each word and repeat with children. Pair children. Have them take turns describing the locations. Encourage them to use complete sentences.

LESSON 13

SESSION 1 Explore

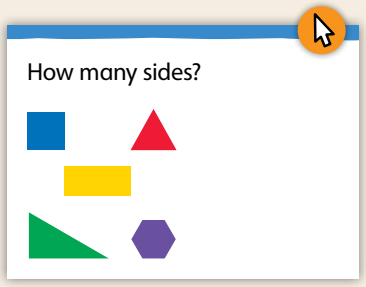
Purpose In this session children are introduced to position words as they place objects in different positions. Then children draw pictures positioned as described and act out position words.

Start

Connect to Prior Knowledge

Why Review counting up to 6 and comparing numbers to 6. Reinforce shape names.

How Have children find how many sides each shape has. Ask questions to find which shapes have more sides, which have fewer, and which have the same. What are these shapes called?



Listen for Children correctly identify the square, rectangle, triangles, and hexagon. Children count number of sides correctly and compare, saying, for example: *The triangles have fewer sides than the other shapes. The hexagon has more sides than the other shapes. The square and rectangle have the same number of sides.*

Try It

Materials For each child: 1 counter

Introduce Position Words

Introduce the words *above, below, beside, in front of, behind,* and *next to.*

Ask *Have you ever heard any of these words used? Where?*

Listen for Children give examples of where they have heard these words used. This might include when hearing instructions to place or get an object at home, when lining up, or when sitting in a circle at school.

Point to objects in the classroom and describe their positions relative to other objects. Focus on using the terms *above, below, beside, in front of, behind,* and *next to*.

For example, you might say: *The plant is in front of the window and next to the tissue box. The bulletin board is above the shelf and below the flag.*

Place Children in Different Positions

Invite two children to the front of the class, and have them stand next to each other. Then invite a third child to stand behind one of the children while a fourth child stands in front of the other child.

Ask *What can you say about where each child is?*

Listen for Children should use position words individually or in full sentences to describe the positions. For example: *Mia is in front of Jamal. Joe is next to Rosa.*

Place an Object in Different Positions to Match Descriptions

Direct children's attention to the Student Worktext page. Tell them that the name of the character on the page is Snargg and that you are going to have them place a counter in a position you describe to them (in relation to Snargg).

For example, ask children to place their counter next to Snargg.

Repeat, using the words *above, below, beside,* and *in front of.*

Ask *Can you move your counter to a different place and still have it be next to Snargg? Why or why not?*

Listen for Children should show that the counter can be on either side of Snargg and be described as *next to.*

Common Misconception **If** children confuse words such as *beside* and *below*, **then** make note to use these words in context throughout the school day. For example, use *beside* to describe whom children are sitting next to on the rug.

Connect It

Draw Pictures in Different Positions

Tell children to imagine they are camping in space and that you will be asking them to draw pictures in positions you describe. For example, say: *Draw a star below the camper*. Make sure to use the words *above, below, beside, in front of,* and *next to*.

Ask *How did you know where to draw the star?*

Listen for Children should explain their drawing in relation to the camper. Some children may mention their previous work with *below* and how that helped them remember.

Support Whole Class Discussion

Ask *What are ways you could use these words to tell about the camper compared to the objects you drew?*

Listen for Children should use sentences to describe the camper in relation to the other objects, such as: *The camper is above the star*. Children may see the connections between opposites, such as if an object is below the camper, then the camper must be above that object. Also, they may see the similarities when describing an object as next to/beside the camper: then the camper is also next to/beside that object.

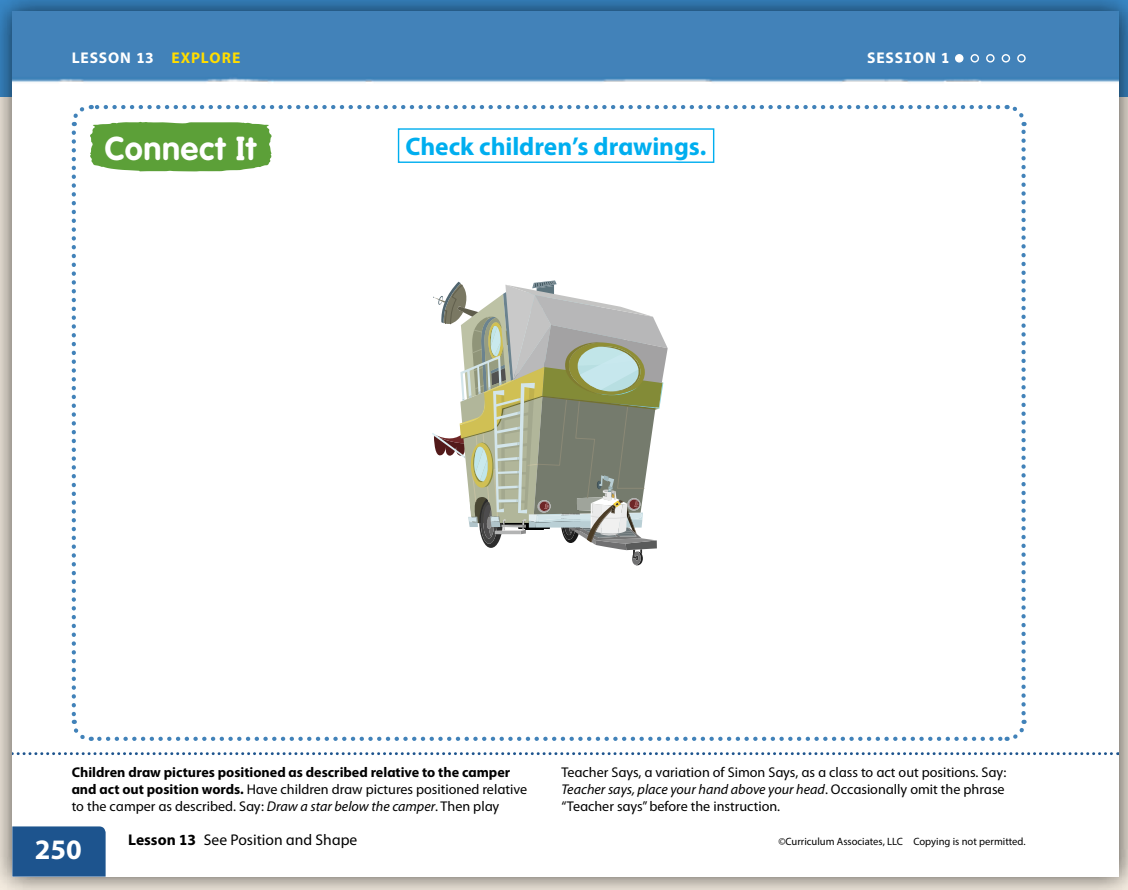
Play Teacher Says

Lead the class in a game of Teacher Says, which is like Simon Says. Ask children to place different body parts in specific positions. For example, say: *Teacher says, place your hand above your head.*

Include the position words *above, below, beside, in front of, behind,* and *next to*. As in Simon Says, occasionally omit the phrase "Teacher says" before the instruction.

Watch to see who is confident and who looks around to copy others.

Children will spend time working with examples and nonexamples of the concept of above in Additional Practice.



Close: Exit Ticket

Materials For each child: 1 pencil

Have children place a pencil in different positions relative to their desk, for example, above, below, in front of, next to. Have children look at the slide and explain where the pencil is.

Look for Children place the pencil in the position as directed in relation to their desk.

Possible Solutions On top of, on, above

Common Misconception **If** children see the pencil as being in front of the desk because the desk appears behind the pencil in the picture, **then** have them act out the picture with their own pencil and a desk.

Real-World Connection

Encourage children to think about real-world situations in which people might need to use position words. Have volunteers share their ideas. Examples: asking someone to reach an object for you at the store, describing where you want an object to be placed when setting up a game, describing your place in line, giving instructions when making something, giving directions to a location

Solutions

Support Vocabulary Development

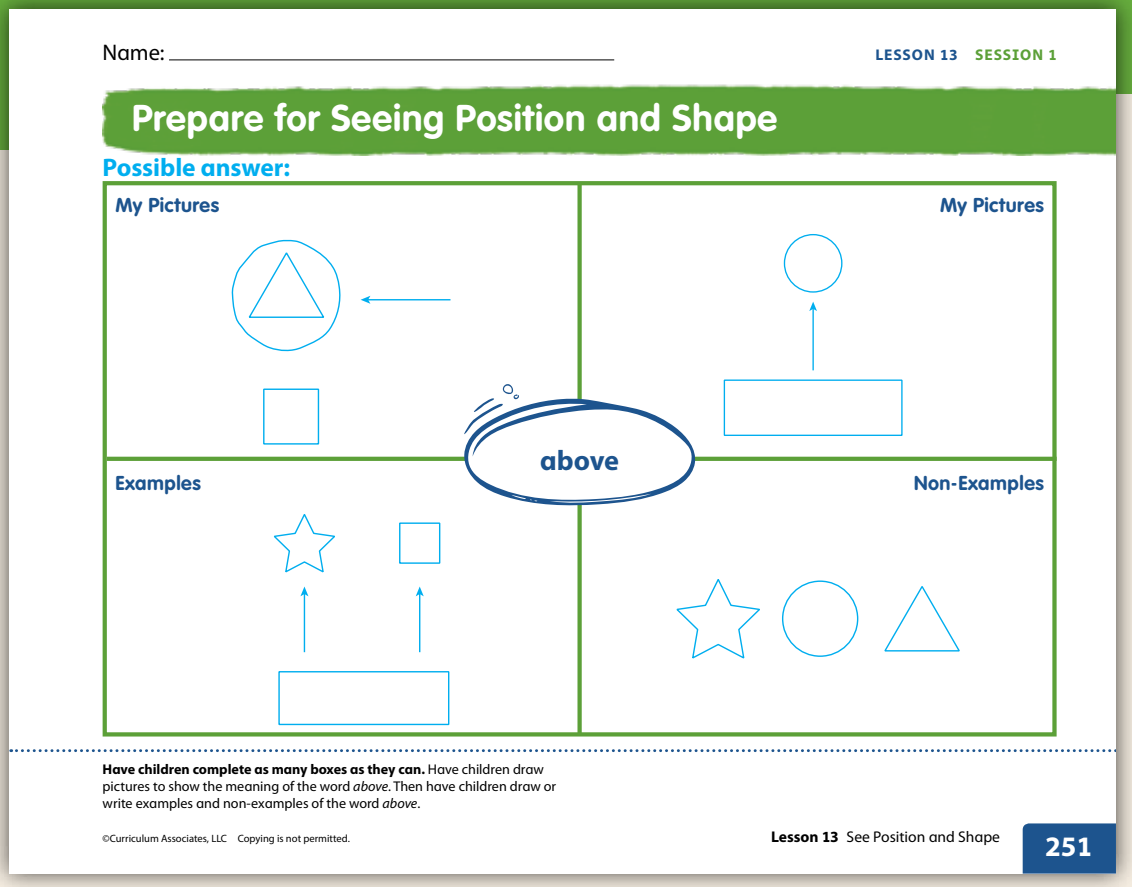
This activity can be used to informally assess children's understanding of positional words and shapes. Children can show what they know now. You can have them revise their thinking and revisit their responses once they have completed the lesson or unit.

If children need additional support, the following steps provide explicit instructions to guide them.

Point to the term *above* and read it aloud with children. Model the term *above* by placing your hand above your head. Say: Above *means "over" or "higher than" something*. Have children draw a box with a circle above it. Draw a rectangle on the board. Pair children. Ask them to talk about things that they can draw above the rectangle. Have children complete all but the non-examples box in the graphic organizer with a picture that represents *above*. In the non-example box, have them draw a picture that represents a different position, such as *next to* or *below*.

Supplemental Math Vocabulary

- *below*
- *beside*


Name: _____ LESSON 13 SESSION 1

Prepare for Seeing Position and Shape

Possible answer:

Have children complete as many boxes as they can. Have children draw pictures to show the meaning of the word *above*. Then have children draw or write examples and non-examples of the word *above*.

Building Fluency

Practice making 10.

Materials none, children use their fingers

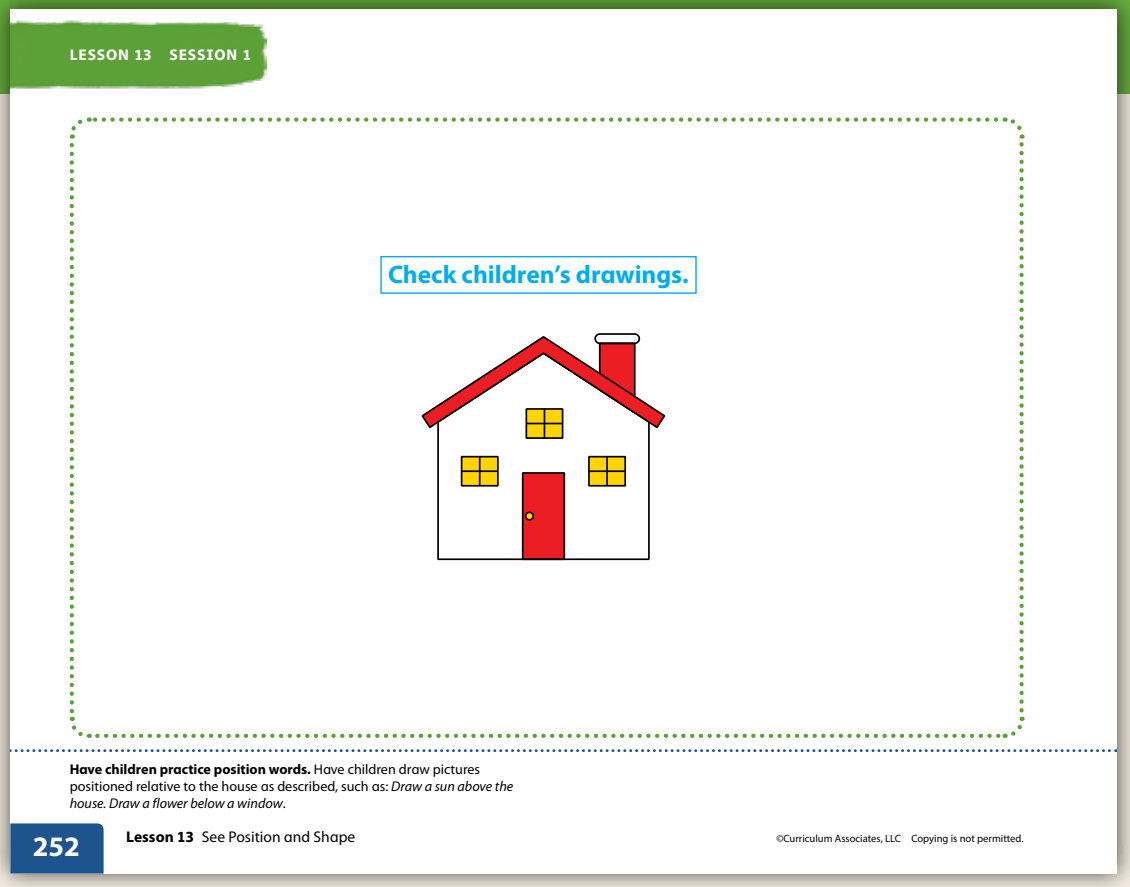
Have children work in pairs. One child holds up a number of fingers and says the number. His or her partner holds up the corresponding number of fingers needed to make 10 and says the number. Both partners agree they are holding up 10 fingers in all.

Solution

Assign this problem to provide another look at words that describe the position of an object relative to another object.

This problem is very similar to the problem about drawing objects around the camper and acting out positions in the classroom. In this problem, children will draw objects relative to the house on the page as described.

- Check that children's drawings match the descriptions.
  Medium



ELL English Language Learners: Differentiated Instruction

Prepare for Session 2
Use with *Connect It*.

Levels 1–3

Listening/Speaking Have children examine the ***Connect It*** scene. Say: *Find an object that is above the jackets. What is it?* family picture Have the children draw a ring around the picture frame. Say: *Find an object in front of the red bowl. What is it?* a spoon Have children draw a line under the spoon. Say: *Find two things behind the table. What are they?* bears Have children mark the bears with an X. Guide children in talking about the items they marked on the picture. Ask: *Where is the family picture? Where is the spoon? Where are the bears? Where is the backpack?*

Levels 2–4

Speaking/Writing Pair children to complete ***Connect It***. Encourage them to talk as they collaborate to follow the directions. Guide them with questions, for example: *What will you mark with an X? What object will you circle?* Have partners talk about the objects they marked. Ask the following questions, pausing to allow children to turn and share ideas after each question: *Where is the family picture? Where is the spoon? Where are the bears? Where is the backpack?* Challenge children to write in their math journal a sentence about one of the objects. Provide the sentence frame: _____ *is/are* ___ *the* _____. Encourage children to use inventive spelling for unknown words.

Levels 3–5

Speaking/Writing Pair children to complete ***Connect It***. Have partners talk about what they need to do. For example: *What will we mark with an X? What object will we circle?* Ask: *Where is the family picture?* Allow time for children to practice answering in a complete sentence. Have them take turns asking one another where the marked objects are. Provide the following list of terms: *beside, behind, in front of, next to, above, below.* Tell partners to choose three terms to use in sentences about the picture. Have them write the sentences in their math journal.

LESSON 13

SESSION 2 Develop

Purpose In this session children describe shapes and the position of objects.

Start

Connect to Prior Knowledge

Why Reinforce the concept of comparing numbers.

How Say: *A group of children were asked to draw a star on the picture and then describe its position. Joe drew a star above the moon. What color star did Joe draw? Kai drew a star in front of the moon. What color star did Kai draw?*

Solution Joe drew a purple star. Kai drew a yellow star.

Develop Language

Why Develop understanding about subject-verb agreement with *is* and *are*.

How Present the following sentence starters:

The children *are* . . . / *The squirrel* *is* . . . Have children turn and talk to share ideas of how to complete each sentence. Underline the subject and circle *is* or *are* in each sentence. Draw a sketch above each subject to show that *children* is "more than one" and *squirrel* is "just one." Together, create sentences using *is* and *are* with the following subjects: *leaves, birds, dog, trash can*.

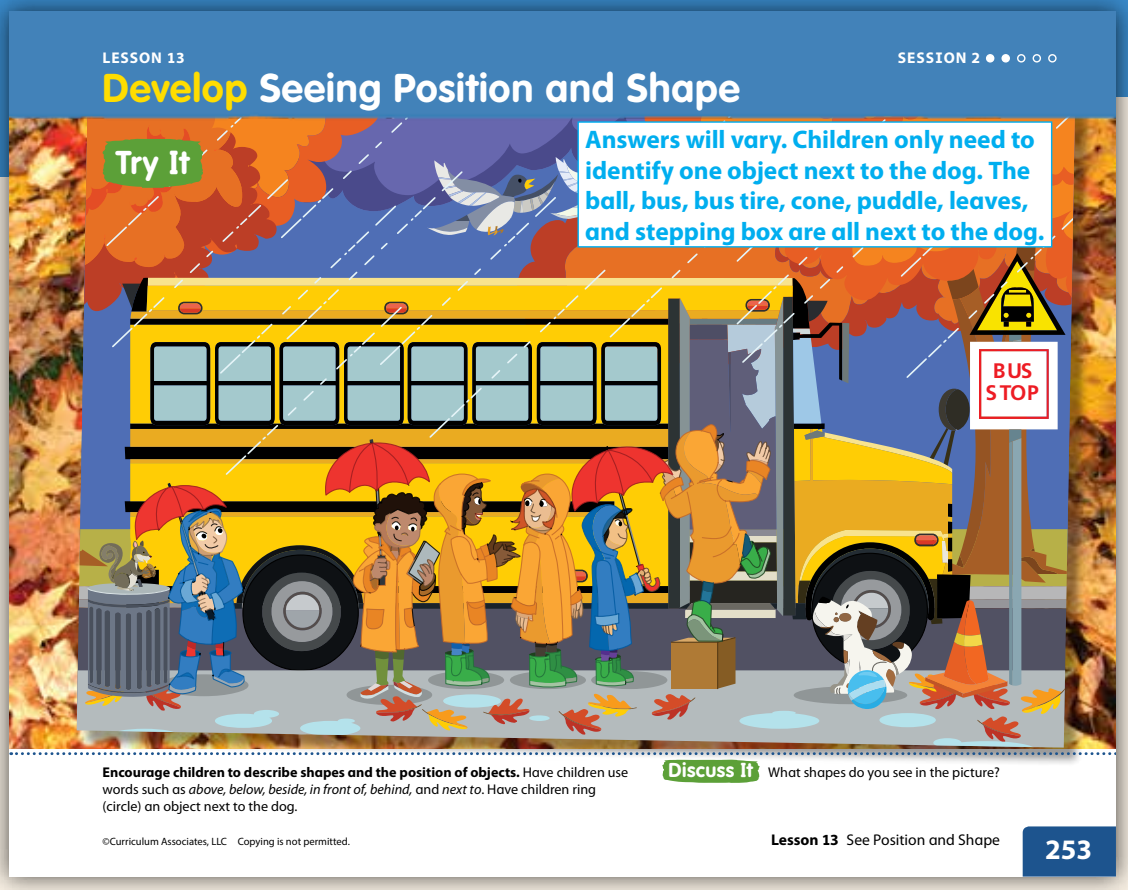
Try It

Present the scene and engage children by having them connect objects and shapes they see.

Ask *What shapes do you see in this picture?*

Have children point to and name the shapes they can see and tell the objects.

Provide an example, such as: *I see a window on the bus. It looks like a rectangle.*



After several shapes have been identified, remind children of the work they did in the previous session with position words. Ask them to ring (circle) an object *next to* the dog.

Discuss It

Support Partner Discussion

Have children talk in pairs about how they can describe the position of other objects.

Support as needed with questions such as:

- *Did you partner use any position words you did not understand?*
- *Can you see two objects that can be described using the same position word?*
- *Can you describe the same object another way?*

Common Misconception **If** children are able to use only some position words accurately, **then** go through different position words one at a time. Each time, describe an object in the picture using the word and then have children give another example.

Select and Sequence Solutions

Select children to present many different solutions. Choose children who use the position words *above, below, beside, in front of, behind,* and *next to,* such as:

- The birds are above the bus.
- This gray bird is behind the white bird.
- The person with brown shoes is next to a person with green boots.
- The birds are above the dog.
- There are leaves above the trash can and leaves below the trash can.

Support Whole Class Discussion

Compare and connect children's solutions by having them share how they described the positions of objects in the picture.

Record and discuss solutions, encouraging children to use complete sentences. Discuss the shapes of objects as well as their positions.

Discuss similarities and differences in how the positions of objects can be described.

Ask *What are ways you can describe the triangle sign and the square sign?*

Listen for The triangle sign is above the square sign. The square sign is below the triangle sign. Both signs are above the dog.

Ask *How can you describe the position of the cube?*

Listen for Responses might include that the cube is *below* a child, *beside* or *next to* the door, and *in front of* the line.

Connect It

Support Whole Class Discussion

Explain to children they will find objects based on their position.

Have children ring the object above the jackets, draw a line under the object in front of the red bowl, and mark with an X two objects behind the table.

Ask *What are ways you can describe the bowls using the words* next to?

Listen for The green bowl is next to the blue bowl. The blue bowl is next to the green bowl and the red bowl. The red bowl is next to the blue bowl.

Ask *How can you describe where the backpack is in the picture?*

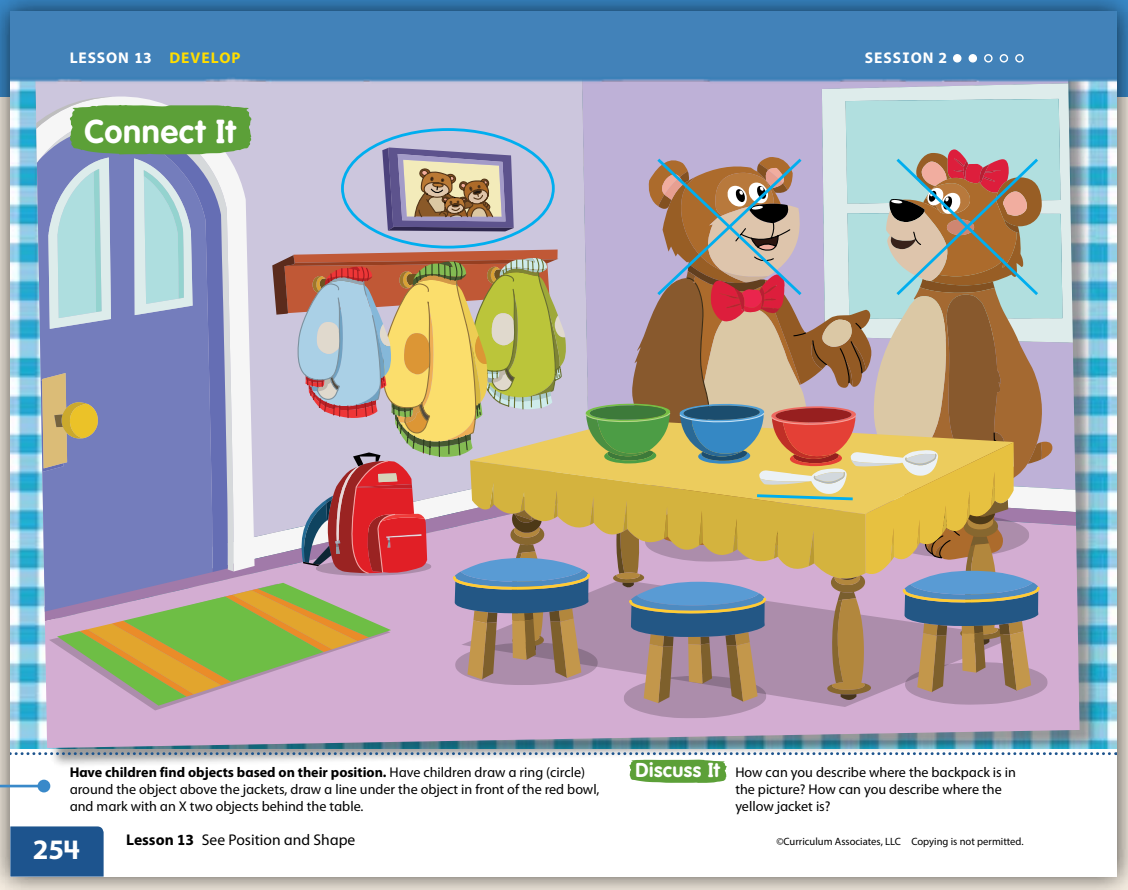
Listen for The backpack is below the blue jacket. The backpack is next to (or beside) the mat.

Ask *How can you describe where the yellow jacket is?*

Listen for The yellow jacket is below the picture. The yellow jacket is next to (or beside) the blue jacket (or the green jacket). Children may also use the word *between* to describe the yellow jacket in relation to the other two jackets.

Ask *If the bears were to hang another picture just above the blue jacket* (point to this space on the page), *how could you describe the position of this picture?*

Listen for Above the blue jacket. Next to the family picture. Above the backpack.



Deepen Understanding

Shapes and Position

SMP 2 Reason abstractly.

After discussing the scenario of the bears hanging a new picture in *Connect It*, encourage children to think about how the position of objects could be described differently as they move. Explain that the bears are going to move the green bowl.

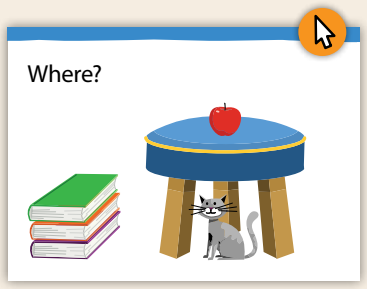
Ask *If the bears put the green bowl next to the backpack, would the way you describe its position change? Why or why not?*

Listen for Yes. It would be next to the backpack. It would not be next to the blue bowl anymore. It would be below the yellow jacket and below the picture.

Generalize *Why do you think the way you describe the position of an object can change if it moves?* Listen for understanding that position words tell the place where an object is. If the object has moved, it may be described with a new position word because the place where it is has changed.

Close: Exit Ticket

Have children work in pairs and take turns asking questions to find certain objects in the picture based on their position. For example: *What is next to the stool? What is above the orange book? What is below the apple?*



Listen for Children describe the following: The cat is below the stool. The apple is above the stool. The stool is below the apple. The books are next to the stool. The green book is above the orange book. The stool is next to the books.

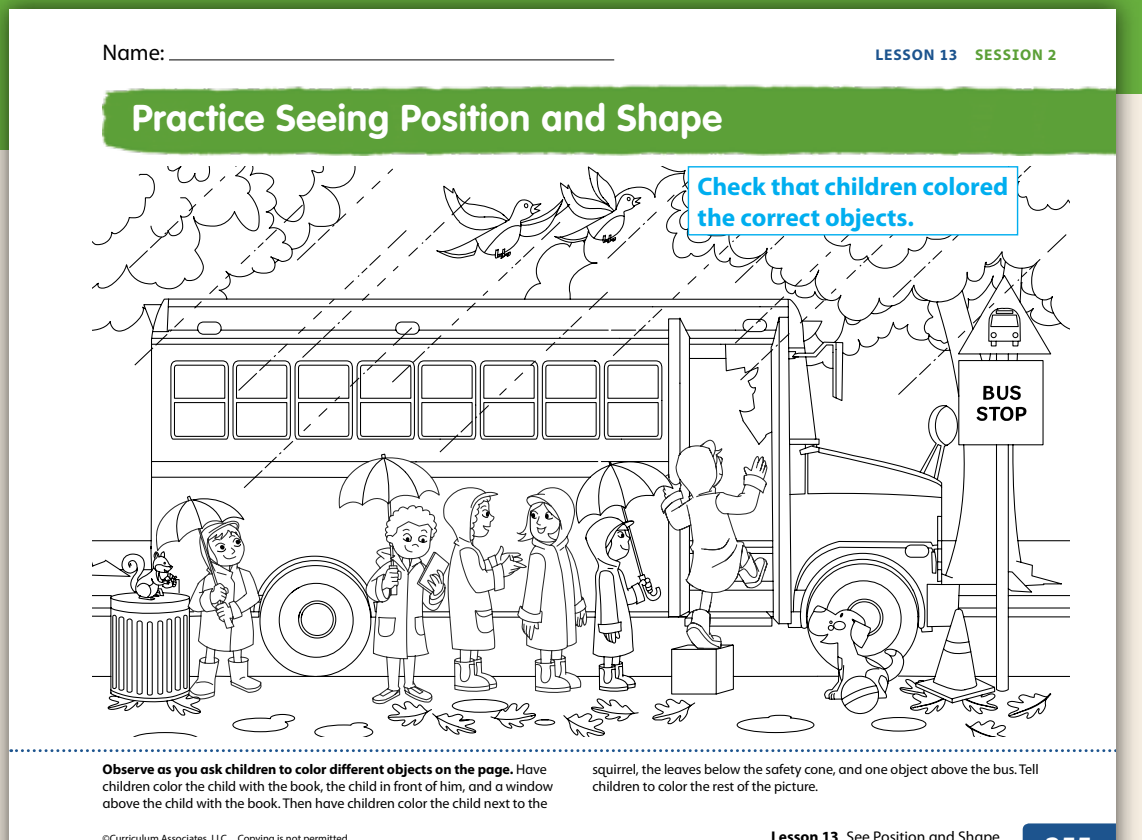
Common Misconception **If** children struggle with describing position, **then** have them act out the positions using objects. For example: *place your pencil below your chair; place your book above your head; name the person next to you;* etc.

Solutions

Children should color the following objects:

- the child with the book, the child in front of him, and a window above the child with the book
- the child next to the squirrel, the leaves below the safety cone, and one object above the bus

Children may then color the rest of the picture.



Name: _____ LESSON 13 SESSION 2

Practice Seeing Position and Shape

Check that children colored the correct objects.

BUS STOP

Observe as you ask children to color different objects on the page. Have children color the child with the book, the child in front of him, and a window above the child with the book. Then have children color the child next to the squirrel, the leaves below the safety cone, and one object above the bus. Tell children to color the rest of the picture.

Fluency Practice

Play "I Spy" to practice position words.

- Tell children they are going to play I Spy to practice position words. Start the game with an observation such as *I spy something above the clock. What do I see?*
- Have children take turns trying to identify what you see. For each guess, reinforce the position of the object. For example, say: *The [object] is above the clock, but it is not the object I picked.* or *That [object] is [position] the clock. My object is above the clock.*

Count and recognize numbers to 10.

Materials For each pair: 10 counters, Activity Sheet *Number Cards 0 to 10: Small*

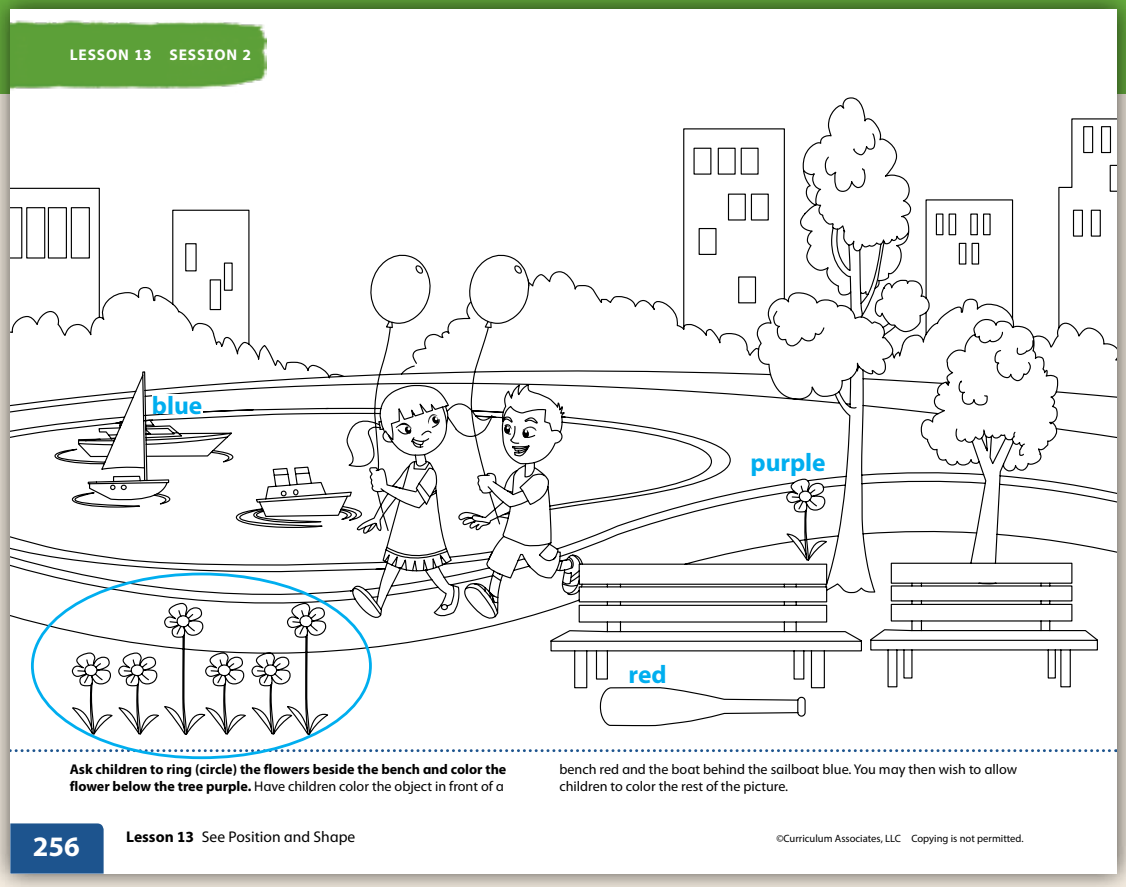
- Have children work in pairs. One child displays a number of counters. The partner chooses the number card that tells the number of counters displayed.
- The first child says whether he or she agrees that the number card tells the number of counters displayed.

Solutions

Children should:

- ring (circle) the flowers beside the bench
  Medium
- color the flower below the tree purple
  Medium
- color the object in front of a bench red
  Medium
- color the boat behind the sailboat blue
  Medium

Children may then color the rest of the picture.



ELL English Language Learners: Differentiated Instruction

Prepare for Session 3
Use with *Try It*.

Levels 1–3	Levels 2–4	Levels 3–5
Listening/Speaking Explain the ***Try It*** activity. Direct children's attention to the chart. Look at each object and discuss its shape. Place two or three cylinders in various positions with respect to other objects in the classroom. Point to the picture of the paint can on the page. Say: *This is a cylinder*. Have children look around the classroom and find another cylinder. Then ask: *Where is the cylinder? Is it above the (object) or below the (object)?* Repeat with other objects and locations.	**Listening/Speaking** Explain the ***Try It*** activity. Place two or three cylinders in various positions with respect to other objects in the classroom. Have children name the shape of the paint can in the chart and look for similar shapes in the classroom. Ask: *Where did you find the cylinders?* Encourage children to answer in complete sentences. Repeat with other objects and locations.	**Speaking/Listening** Explain the ***Try It*** activity. Pair children up to find shapes that are like the ones in the chart. Once they find the shape, have children name the shape and tell where they found it using complete sentences. After children have completed the chart, have them take turns moving one of the objects to a new location and asking their partner: *Where is the (cylinder) now?*

LESSON 13

SESSION 3 Develop

Purpose In this session children identify objects with the same shape and use position words to describe the position.

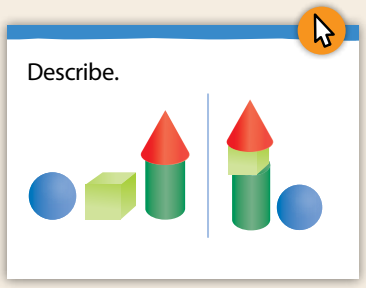
Start

Connect to Prior Knowledge

Materials For each pair: geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

Why Reinforce shape names and describe position.

How Cover one of the pictures on the slide. Have one of the pair sit with their back to the screen with the shapes in front of them. The other partner describes where the shapes are in the picture so the first child can try to build it. Then swap, uncovering the second picture for the other partner to describe.



Listen for Children use position words to describe where the shapes are in the picture.

Develop Language

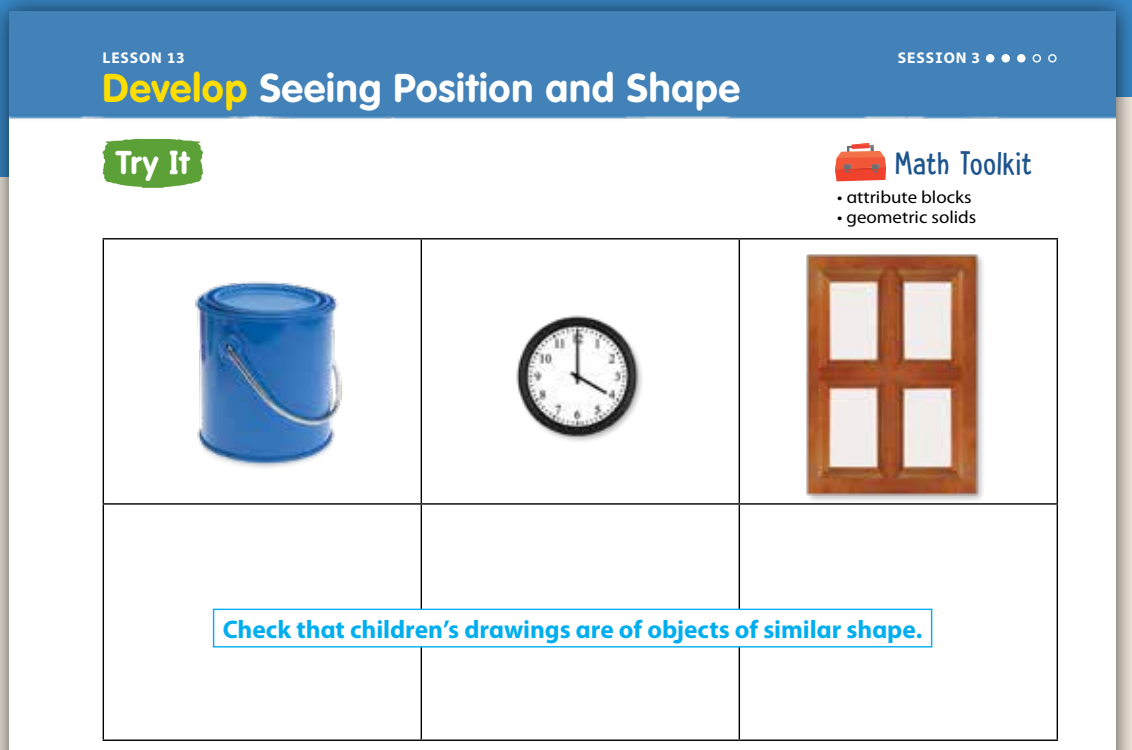
Why Distinguish between *similar* and *same*.

How Explain the nuance in definition between *similar* and *same* when comparing objects. Say: *We use* same *if two things are exactly alike. We use* similar *if two things are not exactly the same but share some characteristics that are alike.* Remind children that the activities in this session require them to find *similar* shapes. Clarify that the shapes do not have to be the same size or orientation to be *similar*.

Try It

Materials For display: cylinder, circle, rectangle, attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

Explain to children that they will find, describe, and draw objects with shapes similar to those on the Student Worktext page.



Hold up a cylinder. Ask children to find another object in the classroom that has a similar shape, name the shape, use a position word to describe it, and draw it underneath the paint can. Repeat with a circle and a rectangle.

Support Partner Discussion

For each shape, have children tell a partner the shape they found and how they described it. Support as needed with questions such as:

- *What did you notice about the way your partner described the shape?*
- *How can you explain why those shapes match?*

Common Misconception: **If** children use a two-dimensional shape name for a three-dimensional shape, **then** discuss the differences with children. Use the geometric solids and attribute blocks to show examples.

Select and Sequence Solutions

Select children to present different objects they identified. Choose children who identified:

- objects with the same shape but different size from those shown
- objects with the same shape but different color from those shown

Discuss It

Support Whole Class Discussion

Compare and connect children's solutions. Ask the following questions.

Ask *Look again at the object you found. How is its shape similar to the object on the page?*

Listen for Some children might choose the same object as on the page (another can, clock, or window), so they may note that the similarities include that the object is the same and looks similar. Others may have chosen a different object with the same shape. In both cases, focus on the fact that despite differences in object, size, color, or orientation, the shape is the same.

Ask *Were the position words you used the same or different? How can they all be correct?*

Listen for The shapes we found were in different places, so we are telling about different positions. We compared the shapes with different objects.

Hands-On Activity

Identify objects with the same shape.

If . . . *children are still unsure about recognizing and naming shapes in the environment*

Then . . . *use the activity below to reinforce the ideas with different objects.*

Materials For each child: none, children use display materials; For display: number cube, paper plate, book, soup can, ball

- Hold up one object. Have children pass the object around so that they can each hold and see it.
- Invite children to point to an object in the classroom that has the same shape. Ask selected children to identify the object and tell the shape name if they know it. If necessary, state the correct shape name. For example, if children identify a shape as a can, say that it is called a cylinder.
- Discuss different suggested objects and how children know they are the same shape. Suggest an object that is not correct, and ask children to explain how they know it does not match.
- Repeat the process with each object.

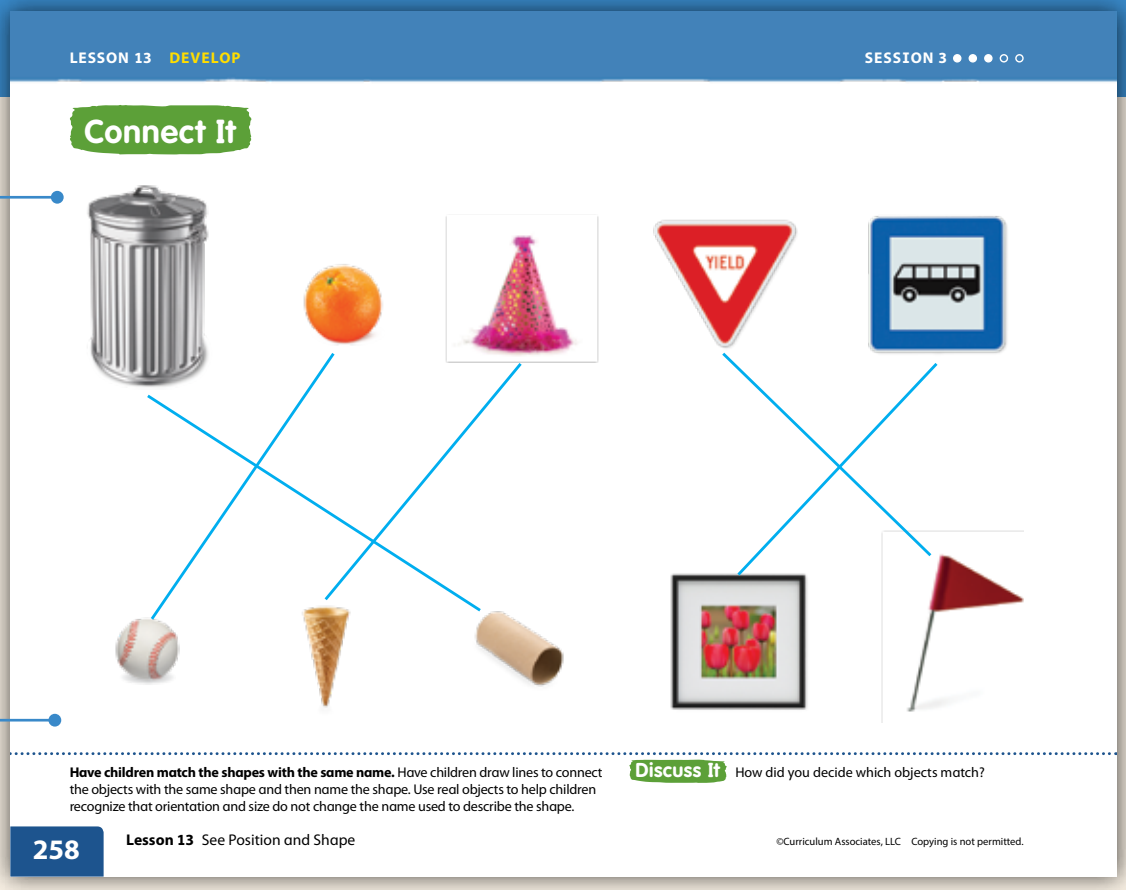
Connect It

Support Whole Class Discussion

Have children draw lines to connect the objects with the same shape and then name the shape. Use real objects to prompt children to recognize that orientation and size do not change the name used to describe the shape. When all of the problems have been completed, have several children share their answers and thinking.

Ask *How did you decide which objects to match?*

Listen for I looked for objects with the same number of sides. I looked for objects that both had curved parts. I looked for objects that had the same number of corners.



Deepen Understanding

Identifying Shapes

SMP 6 Attend to precision.

When children discuss the reasoning they used to make matches, encourage them to use precise mathematical language.

One way to do this is in your responses. If children use a word such as *points* to describe corners, reply positively to the explanation and repeat it using the word *corners*.

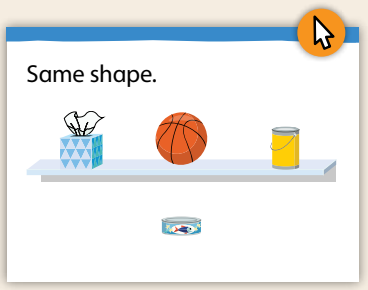
Ask *Why is it helpful to use words like* corner *and* side*?*

Listen for The corners and sides on a shape are the same for that shape, even if the object is different. It is easier for others to know what we mean when we use the same words.

Generalize Draw a square and a triangle on the board. Ask several children to describe the differences between the two shapes. Listen for precise language, such as *corner, side, triangle*, and *square*.

Close: Exit Ticket

Have children look at the objects on the shelf. Have them describe the shape of each object. Then have them decide which object matches the shape of the object at the bottom of the picture.



Solution The paint can and the tuna can are both cylinders, so they match.

Common Misconception **If** children cannot see that the paint can and tuna can are the same shape because they look different, **then** have them describe the tuna can and say which shape it is like and then find the object that can be described in the same way.

Solutions

Children:

- draw lines to connect the objects with the same shape
- name the shapes

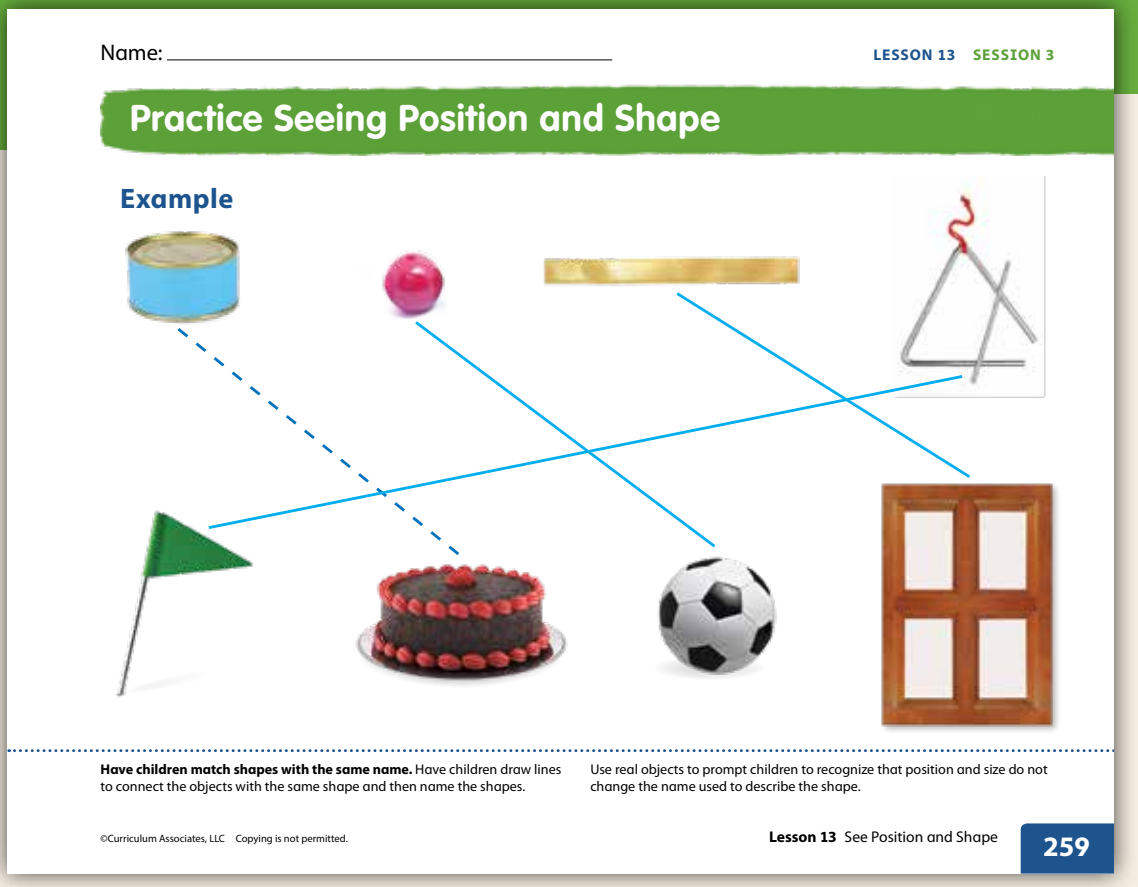
Use real objects to prompt children to recognize that position or size do not change the name used to describe the shape.

Example

Line traced to connect the two cylinders
Basic

Problems

- Line drawn to connect the two spheres
  Medium
- Line drawn to connect the two rectangles
  Medium
- Line drawn to connect the two triangles
  Medium


Name: _____ LESSON 13 SESSION 3

Practice Seeing Position and Shape

Example

Have children match shapes with the same name. Have children draw lines to connect the objects with the same shape and then name the shapes.

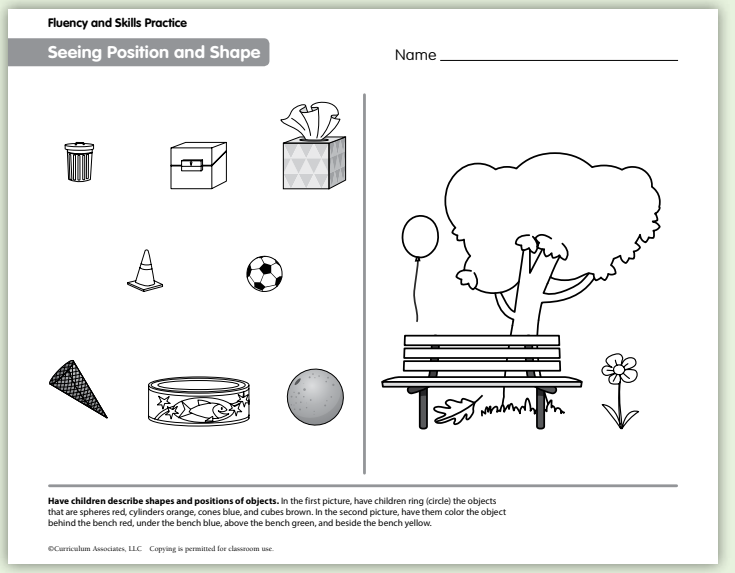
Use real objects to prompt children to recognize that position and size do not change the name used to describe the shape.

Fluency & Skills Practice

Teacher Toolbox

Assign *Seeing Position and Shape*

In this activity children practice identifying objects that are spheres, cylinders, cones, and cubes and identifying objects based on their position. This will help children describe other objects in their environment that are also these shapes or in these positions. For example, children may notice that balls are usually spheres, and they can say whether a pencil is next to or behind a book.


Fluency and Skills Practice

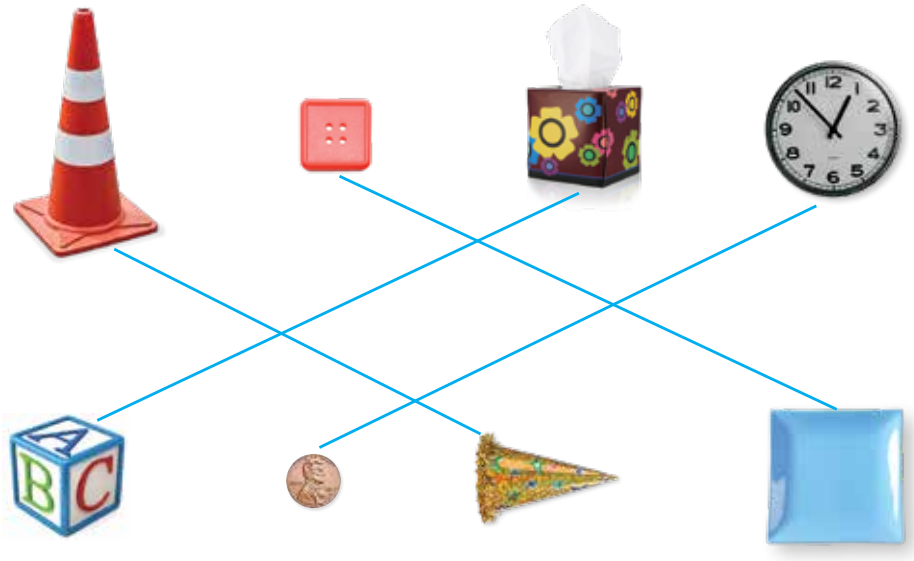
Seeing Position and Shape

Name _____

Have children describe shapes and positions of objects. In the first picture, have children ring (circle) the objects that are spheres red, cylinders orange, cones blue, and cubes brown. In the second picture, have them color the object behind the bench red, under the bench blue, above the bench green, and beside the bench yellow.

Solutions

- Line drawn to connect the two cones
  Medium
- Line drawn to connect the two squares
  Medium
- Line drawn to connect the two cubes
  Medium
- Line drawn to connect the two circles
  Medium



Have children match shapes with the same name. Have children draw lines to connect the objects with the same shape and then name the shapes.

Use real objects to prompt children to recognize that position and size do not change the name used to describe the shape.

ELL English Language Learners: Differentiated Instruction

Prepare for Session 4
Use with *Apply It*.

Levels 1–3

Listening/Speaking Have children work in pairs to complete ***Apply It***. Encourage them to talk about the activity. Ask them questions about each object, for example: *Where did you draw (put) the pencil?* Allow children to respond by pointing to their drawings. As they point, encourage them to use location words or phrases to answer. Model using the words and phrases in complete sentences.

Levels 2–4

Listening/Speaking Have children work in pairs to complete ***Apply It***. Encourage them to talk about the activity. Ask them questions about each object, for example: *Where did you draw (put) the pencil?* Have them turn and talk with a partner to answer the question. After children discuss ideas, provide sentence frames to help them state their answers in complete sentences: *We drew (put) the pencil (crayon, eraser, etc.) _____ the paper.*

Levels 3–5

Listening/Speaking Have children work in pairs to complete ***Apply It***. Encourage them to talk about the activity. Model asking a question about the position of the pencil: *Where did you draw (put) the pencil?* Provide support as needed to ensure children are responding in complete sentences. Have them take turns asking each other questions about other objects in the drawing and responding in complete sentences. If children need additional support, have them label the drawing with terms such as *next to, in front of, below,* and *beside*.

LESSON 13

SESSION 4 Refine

Purpose In this session children use their knowledge of position words to draw objects in relation to a sheet of paper. They then identify objects based on given position words.

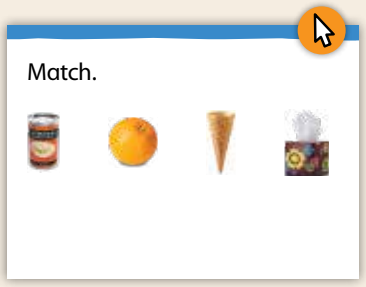
Start

Connect to Prior Knowledge

Materials For display: number cube, party hat, tennis ball, cardboard tube

Why Reinforce matching the shapes of objects. Reinforce names of three-dimensional objects.

How Point to the picture of the can and ask children to describe the shape. Then have a child come and choose an object from the front that has the same shape. Ask children if the correct object has been chosen. Repeat with the orange. Then have a child choose one of the objects from the front not chosen yet. Ask: *Which object on the slide has the same shape as this object? What shape is it?* Repeat with the last object.

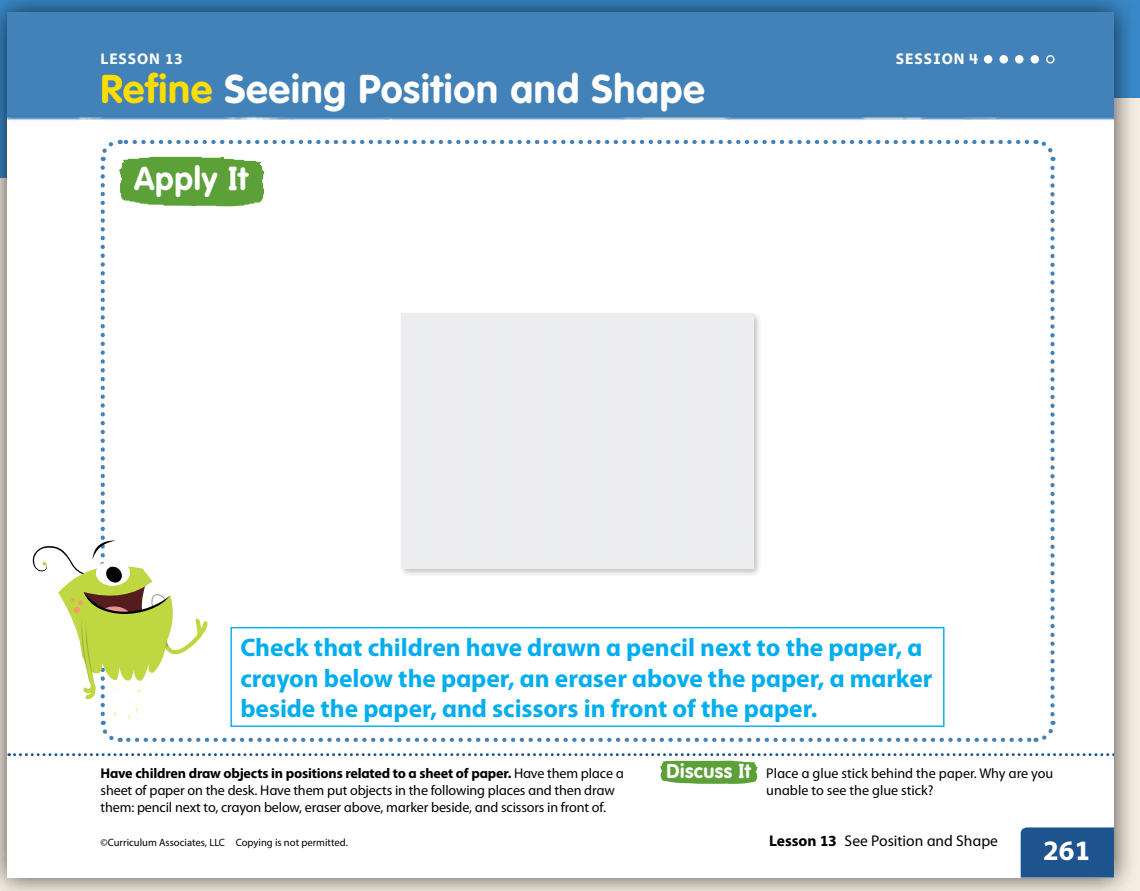


Solution Cylinder: can and cardboard tube; sphere: orange and tennis ball; cone: ice cream cone and party hat; cube: tissue box and number cube

Apply It

Materials For each child: sheet of paper, 6 classroom objects such as pencil, crayon, eraser, marker, scissors, glue stick

For the first page, explain to children that you will say different objects and where to place them in relation to a sheet of paper. Children should follow the directions and then draw the objects.



Ask children to place a sheet of paper on their desk and then put objects in the following places in relation to the paper: pencil next to, crayon below, eraser above, marker beside, scissors in front of.

When children have finished placing objects, have them draw to show their work.

Discuss It

Support Whole Class Discussion

Discuss where children placed the objects.

Ask *Was it hard to choose where to put any of the objects?*

Listen for Children's responses will vary. Use this opportunity to discuss any words children are finding difficult to remember, taking examples from other children to help.

Ask *How can your pencils be in different places and still be correct?*

Listen for There are different ways to be *next to* something. As long as the object is right by the paper, I can say it is next to (or beside) the paper.

Repeat for *beside*.

Ask *Place a glue stick behind the paper. Why are you unable to see the glue stick?*

Listen for It is behind the paper, so the paper is in the way. I cannot see through the paper to see what is behind it.

Ask *What is another way you can describe the paper and the glue stick? How do you know?*

Listen for The paper is in front of the glue stick. If one object is behind, then the other object is in front.

Ask *If I wanted to move an object so there was no object in front of the paper, which object would I move? Where could I move it?*

Listen for Scissors. You could move the scissors to any of the other positions.

For the problems on the second page, tell children they will identify objects that are below, behind, beside, and above.

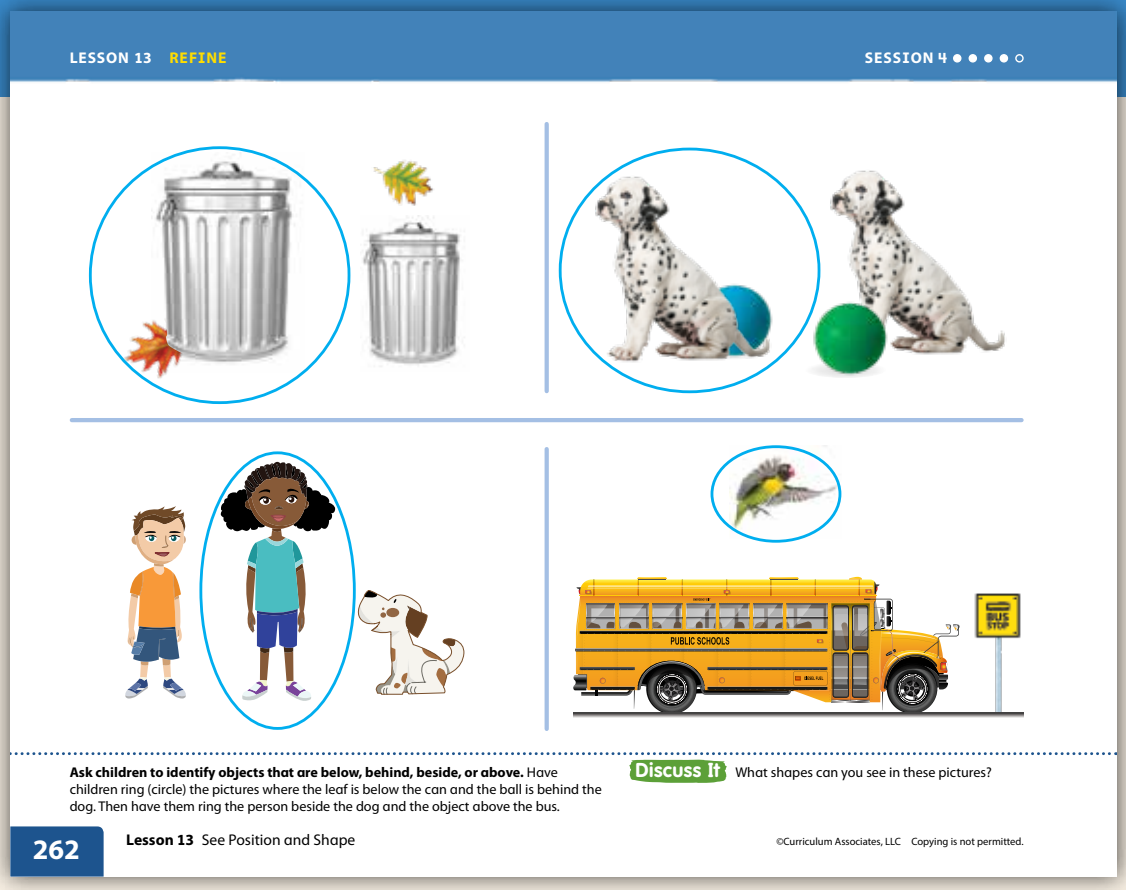
Have children ring (circle) the pictures where the leaf is below the can and the ball is behind the dog. Then have them ring the person beside the dog and the object above the bus.

Support Whole Class Discussion

Have volunteers share their choices. For the problem with *beside,* discuss particularly why the girl should be circled and not the boy.

Ask *What shapes can you see in these pictures?*

Listen for Children may identify cylinders, spheres, rectangles, circles, and squares. Point out and discuss shapes that children do not name.



Close: Exit Ticket

Check for Understanding

Materials For remediation: objects that are cylinders, rectangles, squares, circles, cubes

Ask children to give the mathematical names for the shapes and describe the positions of the objects relative to one another.

Listen for The circle clock is above the cylinder paint can. The paint can is next to the square picture. The rectangle book is behind the cube box of tissues. The box of tissues is in front of the book.

Error Alert For children who are still struggling, use the chart to the right to guide remediation.

After providing remediation, check children's understanding by placing some objects in different positions and asking children to describe the shapes and positions of the objects.

Error Alert

If the error is . . .	*Children may . . .*	*To support understanding . . .*
identifying the shape of the object incorrectly	not know the name of the shape or be able to identify the shape of the objects.	Provide several objects for each type of shape. Encourage children to name each shape and find all the examples of each shape. Then have children try again to identify the shapes.
incorrectly describing the position of the object	not understand each position word.	Provide the child with repeated practice in placing an object in the same position relative to different objects. Then repeat for each of the position words.
using the same position word in each statement	know only one position word.	Provide isolated practice with one position word at a time. Ask the child to place several objects in the same position throughout the classroom until all positions have been used.

Solutions

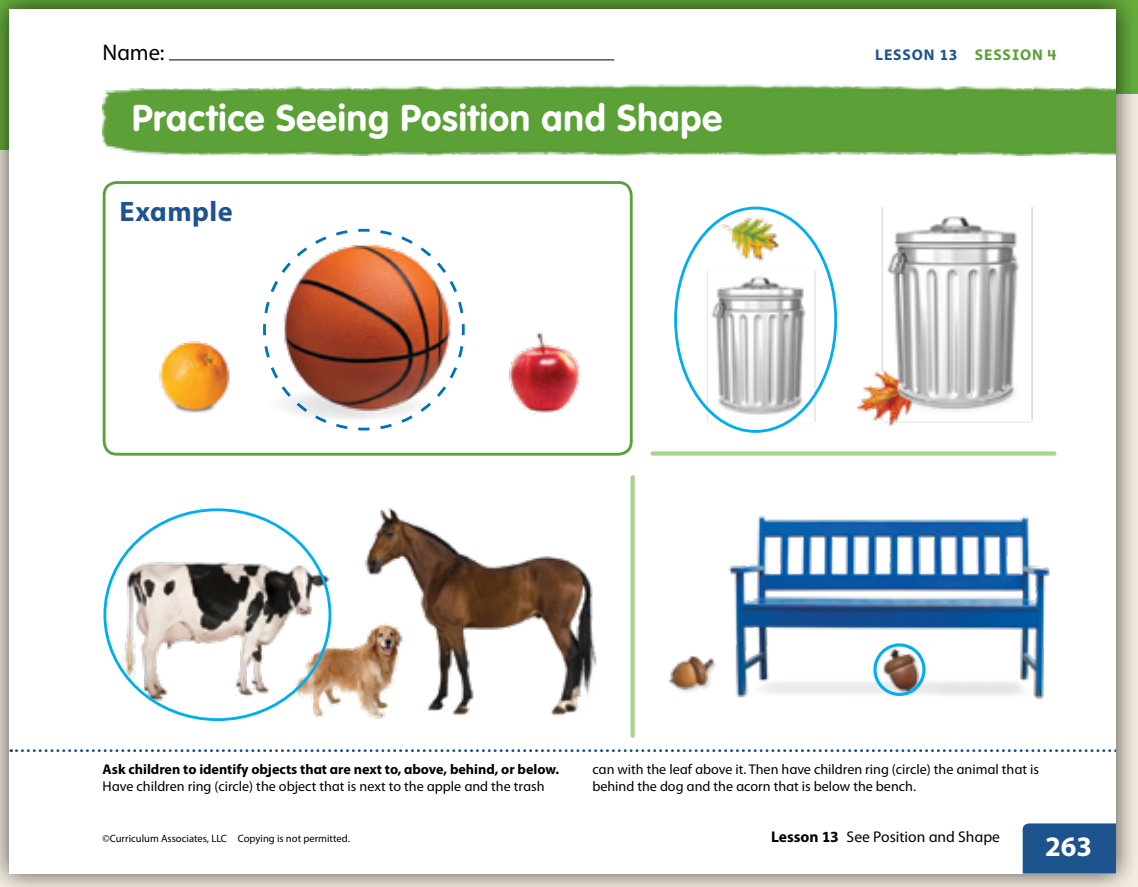
For each problem, children ring (circle) the object that matches the given position description.

Example

Children ring the object that is next to the apple.
Basic

Problems

- Children ring the trash can with the leaf above it.
  Basic
- Children ring the animal that is behind the dog.
  Medium
- Children ring the acorn that is below the bench.
  Medium


Name: _____ LESSON 13 SESSION 4

Practice Seeing Position and Shape

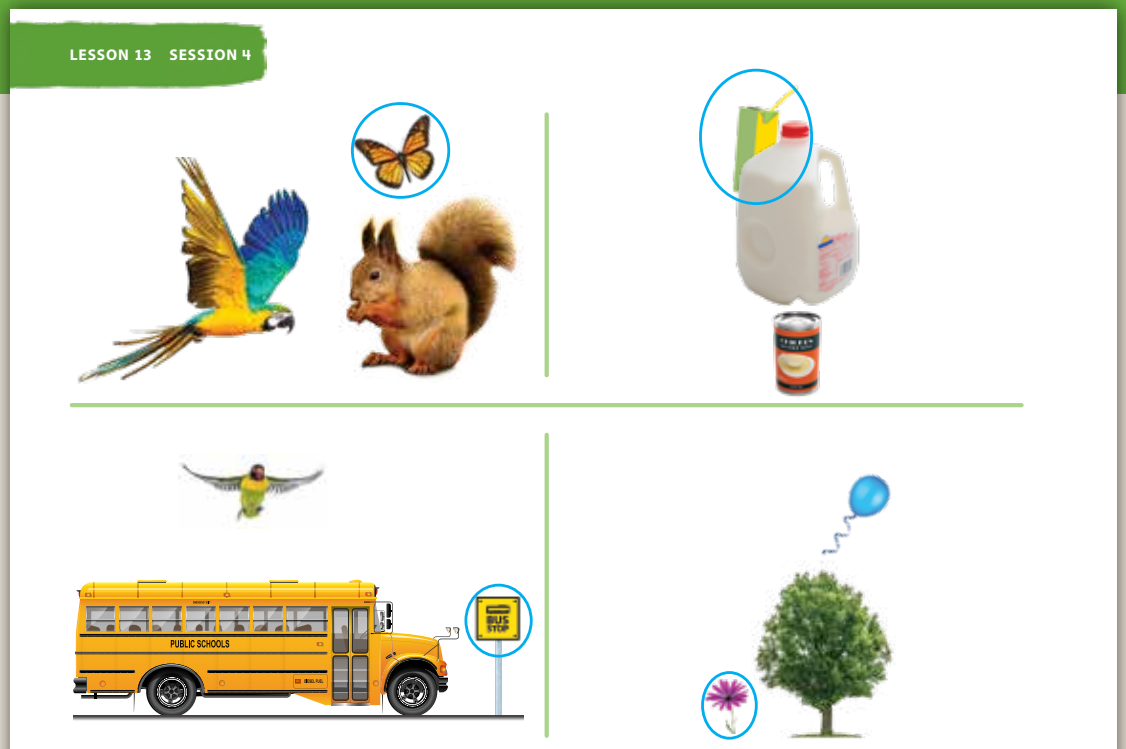
Example

Ask children to identify objects that are next to, above, behind, or below. Have children ring (circle) the object that is next to the apple and the trash can with the leaf above it. Then have children ring (circle) the animal that is behind the dog and the acorn that is below the bench.

Lesson 13 See Position and Shape 263

Solutions

- Children ring the animal that is above the squirrel.
  Medium
- Children ring the object that is behind the milk.
  Medium
- Children ring the object that is in front of the bus.
  Medium
- Children ring the object that is beside the tree.
  Medium



LESSON 13

SESSION 5 Refine

Purpose In this session children practice following verbal directions to place and draw shapes in different positions.

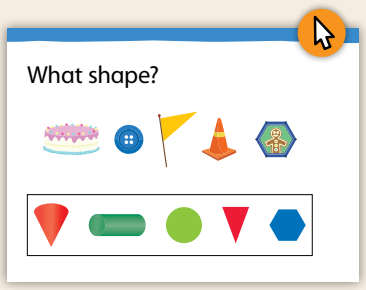
Start

Connect to Prior Knowledge

Materials For each child: copy of Start slide

Why Reinforce shape names and identifying shapes.

How Have children match the objects to the shapes, saying the shape names and whether each shape is solid or flat.



Solution Cake: cylinder (solid); button: circle (flat); pennant: triangle (flat); safety cone: cone (solid); picture frame: hexagon (flat)

Apply It

Materials For each child: Activity Sheet *Object Cards*, glue stick

Tell children they will follow instructions to place objects in certain positions.

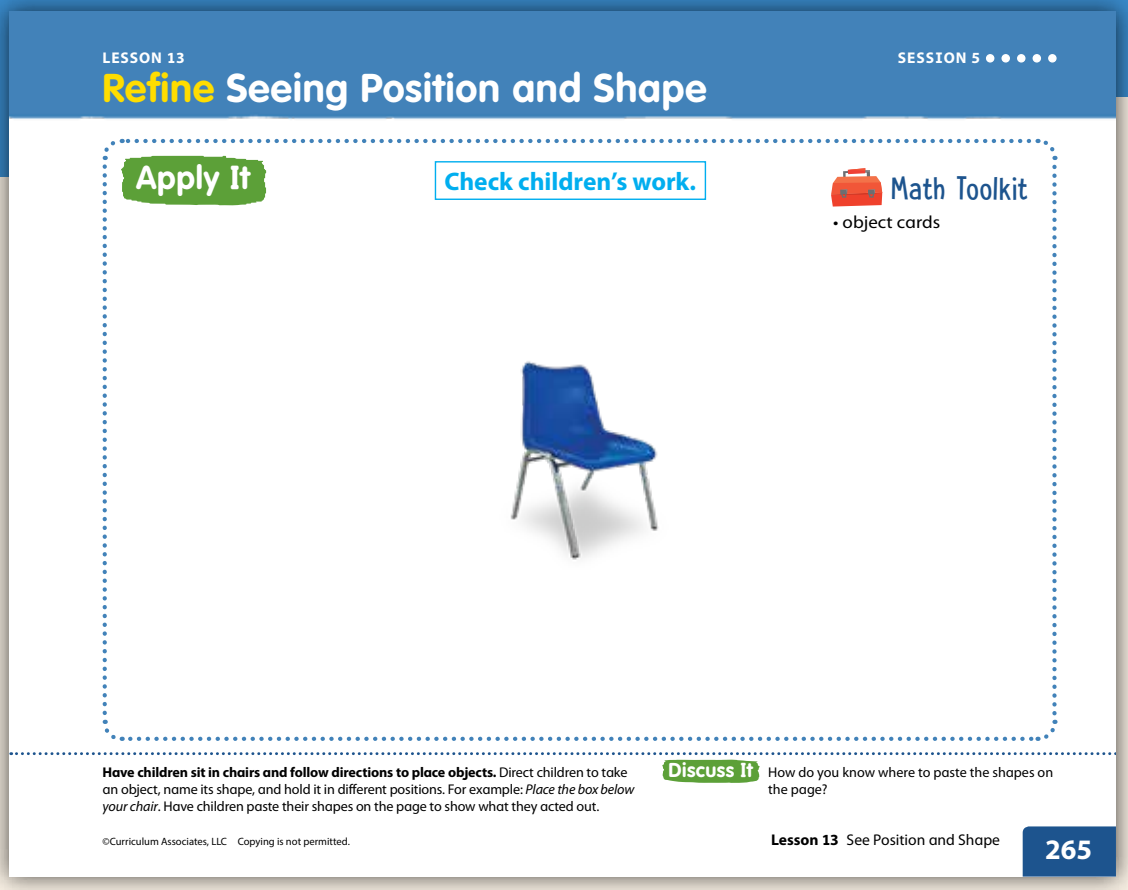
For the first page, direct children to take an object and name its shape. For example: *Hold up the box card. Tell a partner the name of the shape of the box.*

Children should then hold the card in a particular position given verbal directions. For example: *Place the box below your chair.*

Then have children paste their object on the page to show what they acted out.

Repeat for the other object cards, using a different position each time.

For the second page, have children draw a cloud above the house, a flower in front of the house, a boy next to the house, a window beside the door, a circle above the door, a rock below the window, and a tree behind the dog.



Discuss It

Support Whole Class Discussion

When children have finished the first page, have them share their answers. Discuss their reasoning.

Ask *How would your page look different if you had held the cube above your chair?*

Listen for If I held the cube above my chair, I would have to paste it above my chair. There would be no object below the chair. The cube would move from here (points below) to here (points above).

When children have finished the second page, invite them to share what they noticed about the picture and to compare their drawings.

Ask *What shapes were already in the picture before you added your drawings?*

Listen for A rectangle for the house. A triangle for the roof. A rectangle for the door.

Ask *Work with a partner. Are the locations of the objects in your drawings the same? How are they different?*

Listen for The flower, the boy, the window, and the rock can be in different places and still be correct.

Differentiated Instruction

PERSONALIZE

i-Ready

Provide children with opportunities to work on their personalized instruction path with *i-Ready* Online Instruction to:

- fill prerequisite gaps
- build up grade-level skills

Close: Exit Ticket

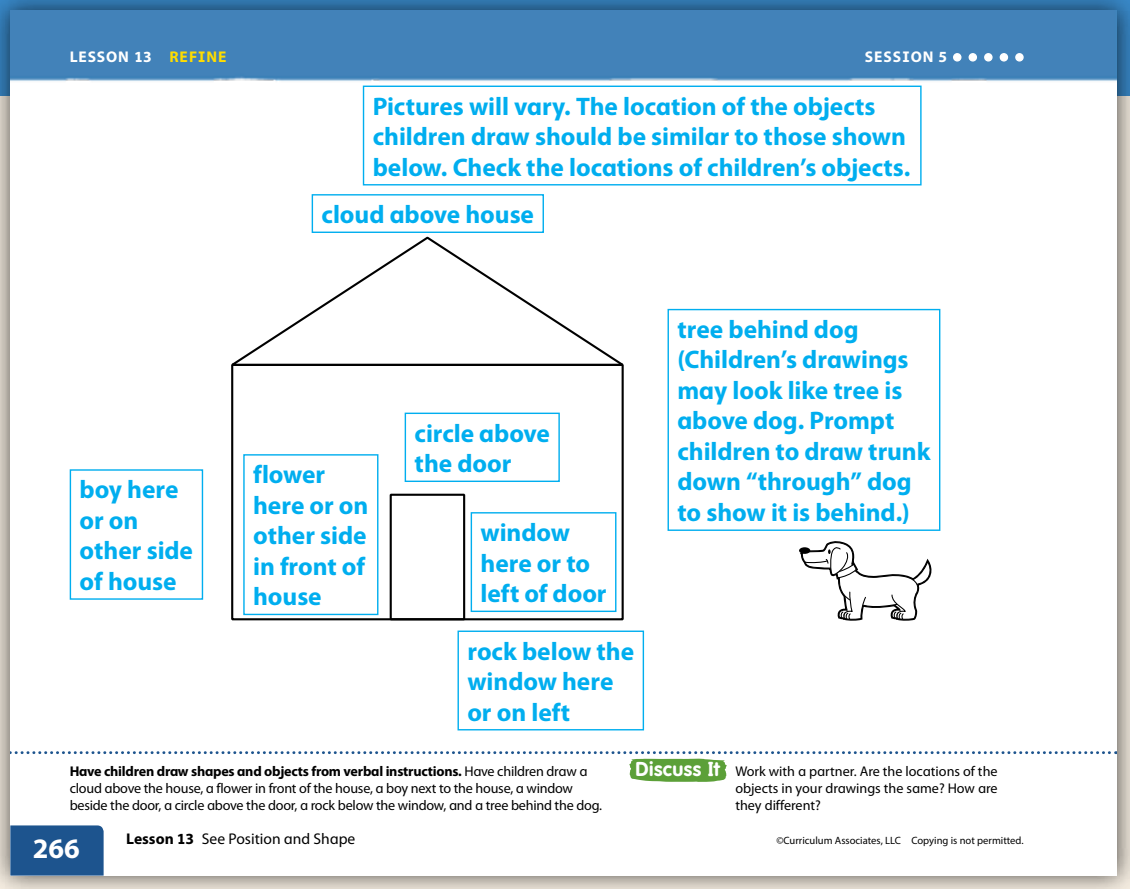
Math Journal

Materials For each child: copy of Close slide

Say: *Noah is asked to draw a bird above the cat and a worm in front of the tree. At which numbers on the picture did Noah draw the bird and the worm?* Have children write the number for each object.

Solution Bird: 2; worm: 1

Error Alert **If** children did not identify the correct position for either object, **then** they may need further support in positional words. Have them act out the problem with an object and themselves and then draw it on paper.



RETEACH

Hands-On Activity

Find shapes in the classroom and describe their relative positions.

Children struggling to identify shapes or use position words

Will benefit from additional work with describing shapes

Materials For each child: attribute blocks, geometric solids (or everyday examples of a cube, cone, cylinder, and sphere)

- Have children hold up a rectangle. Have them find rectangles in the room and describe their positions relative to other items using *above, below, beside, in front of, behind,* and *next to*.
- Repeat the process with other shapes, including circles, triangles, cubes, cylinders, and spheres.

EXTEND

Challenge Activity

Draw shapes with different attributes in different positions.

Children who have achieved proficiency with identifying shapes and using position words

Will benefit from drawing shapes in given positions

Materials For each child: 4 crayons (1 red, 1 blue, 1 yellow, 1 purple), sheet of paper

- Invite children to draw a red circle in the middle of the sheet of paper. Then ask them to draw a blue rectangle above the circle and a yellow triangle below the circle. Ask children to draw a purple circle next to the first circle.
- Continue with other shapes and positions.