Choosing Games to Address CCSS: Mathematics

Alignment to CCSS: English Language Arts

Alignment to ISTE Technology Standards: Students

Alignment to ISTE Technology Standards: Teachers

Try Out the Games

Teaching Routines

Preview the Game

- Buddy’s Gem Hunt
- Huff-Puff-A-Tron
- Sketch-a-Mite
- The Great Shape Race

Teaching Tips

- Buddy’s Gem Hunt
- Huff-Puff-A-Tron
- Sketch-a-Mite
- The Great Shape Race

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<td><strong>Geometry: Identify and Describe Shapes</strong></td>
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<tr>
<td>K.G.A.1 Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.</td>
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<tr>
<td>K.G.A.2 Correctly name shapes regardless of their orientations or overall size.</td>
<td>★ ★ ★ ★ ★ ★</td>
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<tr>
<td>K.G.A.3 Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).</td>
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<tr>
<td><strong>Geometry: Analyze, Compare, Create, and Compose Shapes</strong></td>
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<tr>
<td>K.G.B.4 Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).</td>
<td>★ ★ ★ ★ ★ ★</td>
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<tr>
<td>K.G.B.5 Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.</td>
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<tr>
<td>K.G.B.6 Compose simple shapes to form larger shapes. For example, “Can you join these two triangles with full sides touching to make a rectangle?”</td>
<td>★ ★ ★ ★ ★ ★</td>
<td>★ ★ ★ ★ ★</td>
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## Alignment to CCSS: English Language Arts

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<th>Vocabulary Acquisition and Use</th>
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<tr>
<td>L.K.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on kindergarten reading and content.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>L.K.5 With guidance and support from adults, explore word relationships and nuances in word meanings.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>L.K.6 Use words and phrases acquired through conversations, reading and being read to, and responding to texts.</td>
<td>★</td>
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### Alignment to ISTE Technology Standards: Students

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<tr>
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<tr>
<td><strong>2. Communication and Collaboration</strong></td>
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<tr>
<td>a. Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media.</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td>d. Contribute to project teams to produce original works or solve problems.</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>4. Critical Thinking, Problem Solving, and Decision Making</strong></td>
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<tr>
<td>b. Plan and manage activities to develop a solution or complete a project.</td>
<td>★</td>
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<tr>
<td><strong>5. Digital Citizenship</strong></td>
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<tr>
<td>a. Advocate and practice safe, legal, and responsible use of information and technology.</td>
<td>★</td>
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<tr>
<td>b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity.</td>
<td>★</td>
<td>★</td>
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<tr>
<td><strong>6. Technology Operations and Concepts</strong></td>
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<tr>
<td>a. Understand and use technology systems.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>b. Select and use applications effectively and productively.</td>
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<tr>
<td>d. Transfer current knowledge to learning new technologies.</td>
<td>★</td>
<td>★</td>
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# Alignment to ISTE Technology Standards: Teachers

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<tr>
<th>1. Facilitate and Inspire Student Learning and Creativity</th>
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<tbody>
<tr>
<td>a. Promote, support, and model creative and innovative thinking and inventiveness.</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
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<tr>
<td>c. Promote student reflection using collaborative tools to reveal and clarify students’ conceptual understanding and thinking, planning, and creative processes.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>d. Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.</td>
<td>★</td>
<td>★</td>
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<tr>
<th>2. Design and Develop Digital-Age Learning Experiences and Assessments</th>
<th>Buddy’s Gem Hunt</th>
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<th>Sketch-a-Mite</th>
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</thead>
<tbody>
<tr>
<td>a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity.</td>
<td>★</td>
<td>★</td>
<td>★</td>
<td>★</td>
</tr>
<tr>
<td>b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress.</td>
<td>★</td>
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<tbody>
<tr>
<td>a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations.</td>
<td>★</td>
<td>★</td>
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<td>★</td>
</tr>
<tr>
<td>b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation.</td>
<td>★</td>
<td>★</td>
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<tr>
<td>c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital-age media and formats.</td>
<td>★</td>
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<tbody>
<tr>
<td>c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information.</td>
<td>★</td>
<td>★</td>
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Try Out the Games

Buddy’s Gem Hunt

Huff-Puff-A-Tron

Sketch-a-Mite

The Great Shape Race

NOTE: These links will take you away from the Teaching Tips. They will open a web browser that lets you play the featured game.
Teaching Routines

Maintain Brisk Pacing
Research demonstrates that “brisk” pacing is related to greater content coverage, increased motivation and engagement, and, in turn, higher levels of student achievement.

- **Note the time allocated to each component of game play** (Build Background, Get Ready to Play, Play the Game). Monitor the length of your teaching and children’s turns so that all activities are completed within the allocated time.
- **Establish a predetermined system for calling on children** to work at the whiteboard. For example, write each child’s name on a Popsicle stick and place the sticks in a jar. To call a child to the board, draw a stick from the jar. When a child’s name is selected, set that stick aside, leaving only the sticks of children not yet chosen.
- **Invite all selected children to the whiteboard at once** when more than one child will be playing.

Engage All Children
When children are highly focused and engaged, they attain higher levels of achievement.

- **Position children so they do not block the screen** when they stand at the whiteboard, so that everybody can see the images and game play.
- **Involve all children in thinking about the correct answers** even if it is not their turn at the whiteboard.
  - Use strategies such as “Turn and Talk.” For example, ask all children to tell a partner the answer they would choose, or if they agree/disagree with a stated choice.
  - When the child at the whiteboard gives an answer, invite all the others to show “thumbs up” if they agree with the answer or “thumbs down” if they disagree.
- **Observe children’s understanding of key concepts.** When most children demonstrate understanding by rapidly choosing correct responses, wrap up game play.

Support Independent Learning
When teachers notice and name the learning strategies children use, children are more likely to become strategic and independent learners.
Teaching Routines

Use Key Vocabulary Frequently
When children have many opportunities to hear and use new vocabulary words, they are more likely to acquire and use the words on their own.

• **Repeat key words as often as possible** during game play, as well as during other parts of the school day when use of these words is appropriate.

• **Ask children to use key words** while playing the games.
  - When children are at the whiteboard, encourage them to use key words to describe their actions. For example, “I am looking for a gem that is a circle.”
  - When children are invited to Turn and Talk, encourage them to use key words. For example, “I agree. The rectangle will patch the hole in the bridge.”

Mediate Game Play
When well-developed educational media programs are effectively joined with a sound classroom curriculum, children demonstrate high levels of motivation and engagement as well as notable increases in early literacy and mathematics skills and knowledge.

• **Load the game on the computer and minimize it before you begin the lesson.** This allows you to optimize instructional time by beginning game play as soon as you and the children are ready.

• **Preview the screen to explain what children will do.** Point out game features such as selecting objects, moving objects, and repeating the game instructions.

• **Quickly mute/unmute the sound by using the mute button** on the top row of the computer keyboard.
  You can also use the volume down/up buttons on the keyboard, or the volume controls on the interactive whiteboard, to adjust the sound.

• **If the touch function doesn’t work, use your computer to click on the item the child touches.**

• **Prepare for the worst!** Have a dry erase board or manipulatives available to carry out activities intended for the interactive whiteboard (such as having triangles, squares, and rectangles on hand for exploring shapes).
Description

Children help Buddy hunt for and collect gems in a cave as a present for the conductor (who drives the Dinosaur Train). The gems are different shapes, colors, and sizes. Buddy describes the features of each shape.

After children find the gems, Buddy asks them to organize the gems in a sorting box before advancing to the next level.

**Level 1:** Children find three circles and three triangles.

**Level 2:** Children collect two sets of gems of four possible shapes (triangle, square, circle, and pentagon) and three possible colors (blue, green, and yellow).

**Level 3:** Children hunt by shape, color, and size (big and small). They sort three pairs of shapes.

Helpful Background

This game’s main focus is on recognizing and sorting shapes, but successful game play also requires careful listening. For children who have not yet acquired good listening habits, this game offers many opportunities to develop this important learning behavior in a motivating and engaging game.
In this lesson, children will:

- learn the names of various shapes, including circle, triangle, square, pentagon
- identify triangles, squares, and pentagons in various orientations
- identify circles, triangles, squares, and pentagons of different colors and sizes
- sort shapes by type, color, and size
- learn new vocabulary, including the words gem, organize, sort, and use these words in context
- focus on listening to and following directions
- use technology to learn, working individually and in groups, and practice selecting and moving objects in an online game

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.
Teaching Tips: Buddy’s Gem Hunt

Build Background

Time: 5 minutes

NOTE: Open two SMART Notebook™ files: Shapes–Rotating and Vocab–Gems. Minimize the Vocab–Gems file to place it on the dock for easy access.

In this game, children need to recognize a shape in different orientations. To develop children’s understanding that changing orientation does not change the type of shape:
• Point to the triangles on the Shapes–Rotating file, which has two triangles and two squares in different orientations. Ask: Are these both triangles?
• Have children respond with “thumbs up” or “thumbs down” and call on a few to explain their reasoning.
• Point out that both shapes have three sides and three corners. Demonstrate that they are the same shape by rotating the second one so that it matches the first. (Select the shape, then use the small green circle to rotate it.)
• If necessary, repeat with the squares, pointing out the four sides of equal length and the four corners.

Close the Shapes–Rotating file and display the Vocab–Gems file. Tell children that in this game Buddy the Dinosaur is looking for gems. Develop their understanding of the word gem:
• Explain that a gem is made from stones often found under the ground in places called caves. Gems come in different colors and shapes, and they are often bright and shiny.
• Point out the word gems in the opening of the cave, and sweep your finger across the word as you say it (without touching the screen). Invite a child to touch the word (revealing gems inside the cave).
• Ask children: What do you notice about the gems? Have them turn to their partners and describe the gems.
• Invite a few children to share their descriptions. Prompt them to talk about the color, shape, and size of the gems.
• Ask children to give a “thumbs up” if they have seen gems in jewelry (such as rings, earrings, necklaces, bracelets) or in a museum.
Get Ready to Play

Time: 10 minutes

Close the Vocab–Gems file and open the game. Tell children that Buddy needs their help to find a certain kind of gem. Explain that sometimes the gem will be a specific shape, sometimes a specific shape and color, and sometimes a specific shape, color, and size. Explain that Buddy is being lowered into a cave, so he can find the gems. Remind children that they need to listen carefully to Buddy’s directions so they know what they are looking for.

Select PLAY and have the class listen as Buddy gives directions. Then mute the sound and ask the class what shape of gem they are looking for.

Point out that at the end of each game, Buddy asks players to organize the gems by moving them into a sorting box or table. Explain that to organize, or sort, means to put things together that are alike. Let them know that in this game they will sort the gems according to color, shape, and size. Do a quick practice: Display multi-colored and multi-shaped blocks and demonstrate or ask children to show ways to sort them.

Tell children that on the interactive whiteboard they move a gem into the sorting box by first touching the gem and then touching the correct spot in the sorting box. On a computer, they click on the gem, move the pointer to the correct spot on the sorting box, and click again.

Unmute the sound and ask: What do you think you can do if you didn’t hear or forgot Buddy’s instructions? (touch or click on Buddy and he will repeat the instructions)

To start the game:
1. Make sure your computer is connected to the whiteboard and the Internet.
2. Find the game on your computer by going to pbskids.org/lab
3. Click on Games on the left. Games are in alphabetical order.
4. When you find the game, select PLAY NOW.
Teaching Tips: Buddy’s Gem Hunt

Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:

• identifying circles, triangles, squares, and pentagons
• recognizing shapes regardless of their orientation
• recognizing colors or sizes
• sorting shapes
• listening and following directions
• playing a game collaboratively
• using common game navigation

Play this game as an independent, Small-Group activity if children understand...

• how to identify different shapes, colors, and sizes
• how to listen to and follow directions
• game navigation

...but need practice:

• recognizing shapes in nontypical orientations
• sorting shapes
Teaching Tips: Buddy’s Gem Hunt

Play the Game: Whole-Class Activity

Time: 10 minutes

As you begin to play the game, mute the sound after Buddy says what kind of gem he wants. Ask children to name and describe the shape they are looking for. (For example: “A circle is round.” Or: “A triangle has three sides.”) Then unmute the sound and invite a child to the whiteboard to collect the gems.

When it is time to sort, remind the class that they must organize the gems by moving each one to a section of the box that has the same shape, color, and size. Point to a space in the sorting box and ask:

- Which gem goes here?
- How can you tell?

Invite a child to the whiteboard to sort the gems. If a child sorts a gem incorrectly, point out the features of the shape they need to look for in the sorting box.

As game play continues, children will need to pay attention to more features to sort the gems. During the third level, ask children to describe the collection of gems using size, color, and shape words. For example: “We found three large blue triangles.”

When most children have mastered the game, stop playing and review key concepts. Ask:

- What shapes did we learn about? (circle, triangle, square, pentagon)
- What did we do to help Buddy collect gems? (found the right shape, color, and size; put them in the sorting box)
- What new words did we learn and practice? (gem, organize, sort)

Tell children: To remember what you learned, look all around for different shapes throughout the day. Point out and name the ones you see.
As you check in with children playing the game, ask them to describe the gems they are finding by shape, color, and size.

When they are sorting the gems:
• Ask: How will you decide where to put each gem in the sorting box?
• Encourage them to describe the collection using size, color, and shape words. (For example: “I found three yellow pentagons.” Or: “I found three large blue triangles.”)

Ask questions that prompt children to use key vocabulary words, such as the names of shapes as well as gem, organize, and sort. For example:
• What is Buddy looking for?
• What kind of gem are you looking for now?
• What will you do after you find all the gems?

If children are having difficulty using the pointer to collect gems, demonstrate how to move the pointer onto a shape and click to collect it. If children are having difficulty moving a gem into the sorting box, demonstrate how to click on the gem, move the pointer (and the gem) to the correct space on the box, then click again.
Description

Players pick the shape that matches the one pictured on the Huff-Puff-A-Tron. Then they feed this shape into the Huff-Puff-A-Tron to create a breeze that will help Nick and Sally fly a kite.

The game has four rounds that are played in sequence. Players match seven shapes in each round.

**Round 1:** Players select the matching shape from four different shapes of the same color.

**Round 2:** Players select a shape of a specific color from that same shape in different colors, or a specific shape among four different shapes of different colors.

**Round 3:** Players select a patterned shape from a set of shapes that have the same or a different pattern.

**Round 4:** Players select matching shapes based on the type of shape and specific color patterns.

Helpful Background

The Cat in the Hat usually, but not always, names the shape players are looking for. Although colored patterns are added to the shapes in Round 3, players do not need to pay attention to matching both shapes and colored patterns until the middle of the last round.

After playing all four rounds, players can choose “Add More Shapes” to continue matching shapes or “Back to the Juice Pumper” to select and play different Cat in the Hat games. These Teaching Tips don’t address either of these options.
In this lesson, children will:

- learn the names of various shapes, including triangle, square, rectangle, diamond, star, heart, circle, oval, octagon, pentagon, trapezoid

- match shapes by type, color, and pattern

- learn new vocabulary, including the words kite, tail, breeze, match, and use these words in context

- use technology to learn, working individually and in groups, using standard game navigation conventions

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.
Teaching Tips: Huff-Puff-A-Tron

Build Background

Time: 5 minutes

Draw a diamond-shaped kite with a tail. Tell children that in this game, they will help Nick and Sally fly a kite. Point to the kite and explain that a kite is a toy that flies when there is wind, or a breeze. Point to the tail and explain that it helps the kite stay up in the air. Kites can be many different shapes, sizes, and colors. Ask children to turn to a partner to answer these questions about kites:

• What happens if there isn’t a breeze, or the breeze stops? (the kite may fall to the ground)
• What happens if the breeze is strong? (the kite may fly higher or faster)

Invite a few children to share their answers with the class.

Point out that to play the game they will need to match shapes. Explain that when two things match, they are alike. To demonstrate matching shapes:

• Draw two large identical triangles of the same color. (You can use the shapes tool on the interactive whiteboard to make and copy shapes.)
• Ask: Do these shapes match—do they look the same? Have children explain their answers (e.g., they are both triangles; they both have three sides; they are both the same color).
• Next, draw a triangle and a square. Ask: Do these shapes match—do they look the same? Have them explain their answers (e.g., they are different shapes; one is a triangle and one is a square; one has three sides and one has four equal sides).
• Add another square. Ask: Which two shapes match? Why?
• Provide additional examples of shapes that do and do not match, introducing some of the shapes they will see in this game, such as triangle, square, rectangle, diamond, star, heart, circle, oval, octagon, pentagon, trapezoid.
• For each pair of shapes, ask: Do these shapes match? Why or why not?
Teaching Tips: Huff-Puff-A-Tron

Get Ready to Play

Time: 5 minutes

Play the introduction to the game, then mute the sound after the Cat in the Hat gives the instructions. Point out the Huff-Puff-A-Tron. Explain that this is an imaginary machine that will help Sally and Nick fly their **kite** by creating a **breeze**.

Demonstrate how to play the game.
- **Ask:** What shape do you see in the window on the front of the Huff-Puff-A-Tron?
- Invite a child to point to the **matching** shape on the left of the screen.
- Have the child explain why it **matches**.

Tell children that on the interactive whiteboard they move a shape into the Huff-Puff-A-Tron by touching the shape, sliding it to the opening, and releasing it. Or, they can touch a shape and then touch the space by the opening. On a computer, they click on the shape, move the pointer (which moves the shape) to the top of the Huff-Puff-A-Tron, and click again. To hear the name of the shape on the computer, they move the pointer over the shape.

Point out the musical note near the top right corner of the sky. Ask: **Can anyone guess what will happen if we select this musical note?**

After children respond, unmute the sound and tap on the musical note to demonstrate that the music stops playing. Select the button again to demonstrate that the music restarts. Tell children that they can select this button to turn the music on or off at any time when they are playing the game.
Teaching Tips: Huff-Puff-A-Tron

Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:

- identifying and naming shapes
- matching shapes, colors, or patterns
- playing a game collaboratively
- using common game navigation

Play this game as an independent, Small-Group activity if children understand...

- how to identify and name shapes
- game navigation

...but need practice:

- matching shapes, colors, or patterns
Teaching Tips: Huff-Puff-A-Tron

Play the Game: Whole-Class Activity

Time: 10 minutes

Mute the sound and ask: What shape do you need to match? Encourage children to use the key vocabulary. For example: “I need to match a red rectangle.”

Tell children to pay close attention to what happens to the kite and tail when the matching shape is moved into the Huff-Puff-A-Tron. Unmute the sound and invite a child to the whiteboard to move the matching shape into the Huff-Puff-A-Tron. Point to the kite and ask the class:

• What happened to the kite? (it went higher in the sky)
• What happened to the tail? (it has a ribbon on it)

Mute the sound again to explain that each time they match a shape, the breeze gets stronger, the kite flies higher, and another ribbon is added to the tail. Once the tail has seven ribbons, they can choose a different kite to fly.

Then unmute the sound and invite different children to move matching shapes into the Huff-Puff-A-Tron.

When most children have mastered the game, stop playing and review key concepts. Ask:

• What does it mean to match shapes? (to pick shapes that are alike, or the same)
• What shapes did we match to make the kite fly higher? (triangle, square, rectangle, diamond, star, heart, circle, oval, octagon, pentagon, trapezoid)

Tell children: Look for different shapes in and out of school, and try to name them. Remembering the names of shapes will help you do other math activities and play other games.
Teaching Tips: Huff-Puff-A-Tron

Play the Game: Small-Group Activity

Time: 10 minutes

As you observe children playing the game, encourage them to describe the shapes they are matching using the names of the shapes as well as their colors and patterns.

If children have difficulty playing on their own, the activities for whole-class instruction will provide helpful practice.

Ask questions that prompt children to use key vocabulary, such as:
• What happens when you match the correct shape and feed it into the Huff-Puff-A-Tron? (it makes a stronger breeze; the kite flies higher; a ribbon is added to the tail)

If children are having difficulty using a mouse or trackpad to move the matching shapes into the Huff-Puff-A-Tron, demonstrate how to click on the shape, move the pointer (which moves the shape) to the top of the machine, then click again to drop it in.

Let children know:
• they can hear the name of a shape by moving the pointer onto the shape without clicking on it
• they can turn the music on or off by selecting the musical note in the top right corner
Description

This game has two main options: Sketch-a-Shape and Termite Tower Challenge. The Teaching Tips address only Sketch-a-Shape.

In Sketch-a-Shape, players select a shape using the red “shape squirter” buttons or draw their own. Then they put each shape into the Whoosh Tube. The shape pops out the top of the tube, which glides back and forth across the screen. Players click on the down arrow when they want to drop the shape.

This game is open-ended. Players can draw any kind of shape they like. They can try to build a tower with the shapes or drop them wherever they want. They can keep adding more shapes.

Helpful Background

This game doesn’t end at any particular point; players can keep adding shapes. You can adjust the pre-set (5-minute) timer for the game by clicking the book-and-apple icon in the top right corner of the screen. You can also start a new game by clicking the START OVER button in the bottom right corner.

You may want to explore the many other options for the game; there are six different settings you can choose by clicking the book-and-apple icon. You can also try the Termite Tower Challenge, where players build a tower with shapes, by selecting the BACK button in the bottom left corner of the screen.
In this lesson, children will:

- name a variety of shapes, including triangle, square, rectangle, circle, semicircle, octagon, pentagon, trapezoid
- describe shapes by pointing out curved and straight lines, numbers and lengths of sides, and numbers of corners
- identify shapes regardless of their orientation or size
- draw various shapes
- learn new vocabulary, including sketch, tower, stack, and use these words in context
- describe the location of shapes using locational vocabulary, such as below, next to, on top of, in the middle of, near, beside, between
- use technology to learn, working individually and in groups, and use a mouse or trackpad to draw shapes

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.
Teaching Tips: Sketch-a-Mite

Build Background

Time: 10 minutes

**NOTE:** Open two SMART Notebook™ files: Vocab–Stack and Shapes–Identifying. Minimize the Shapes–Identifying file to place it on the dock for easy access.

Use the Vocab-Stack file to teach the meaning of the words stack and tower.

- Touch the first blue box to reveal the word **stack**. Point to the word and say: Let's **stack** these objects—put one on top of another—and build a tall **stack**, or **tower**. I'll start by choosing a book first. Then I'll **stack** a block on top of it.
- Invite children to touch objects to move and **stack**, each time prompting them to name the object, describe its location, and use the word **stack**. (“**I stacked** a can on top of a block.”) Each time they move an object, a new one will appear.
- After **stacking** a number of objects, say: We made a tall **stack**, or a **tower**. **Stack** is another work for **tower**.
- Repeat these steps to give children multiple exposures to the words **stack**, **stacking**, and **stacked**. (Use the reset page button on the toolbar to remove the stacks.) When children are **stacking** objects, you can touch the second blue box to point out the word **stacking**. When you are done **stacking**, touch the third blue box to point out the word **stacked**.
- Tell children that they will **stack** shapes in the Sketch-a-Mite game they will be playing.

Close the Vocab–Stack file and display the Shapes–Identifying file to show the different shapes children will use in this game.

- Without touching the board, point to each shape and call on children to name and describe each one. Provide shape names if children do not know them. (If you touch a shape, after a delay you will hear its name and description.)
- Help children notice and describe the type of lines (straight or curved), number of sides, and number of corners for each shape. Highlight these features by touching and counting each of the sides; the lines will become bold when you touch them. Count and touch the corners; a circle will appear on each as you touch it.
- Invite different children to count and touch the sides and corners of other shapes, and to notice the length of the sides.
- Three of the preset shapes are **rectangles**, **squares**, and **trapezoids**. These are all four-sided shapes (quadrilaterals). To help children learn that there are different types of four-sided shapes, point out the unique attributes of these three shapes. For example, a **square** is a special kind of **rectangle**; it has four sides that are all the same length.
Get Ready to Play

Time: 5 minutes

Close the Shapes—Identifying file. Before you start the game, explain to children that they will need to listen very carefully to the instructions given by the Cat in the Hat, Nick, and Sally. After you play the introduction, choose the Sketch-a-Shape option to hear more directions. After you hear, “Ready? Start sketching!” mute the sound.

Review the features on the screen. When appropriate, encourage children to use locational words (e.g., below, next to, on top of, near) to answer your questions. Ask:

- How do you pick a shape? (select a shape in the red “shape squirter”)
- Where can you sketch your own shape? (in the white box below the shape squirter)
- What can you do if you don’t like your shape and want to pick or sketch a new one? (select the garbage can)
- Where is the Whoosh Tube? (next to the white box)
- What happens after you put a shape in the Whoosh Tube? (it comes out the top)
- How do you drop a shape? (select the “drop button,” the down arrow)
- How can you turn off the music? (select the musical note in the top right corner)

Point out that when sketching a shape, they need to draw the shape without lifting their fingers until they’re done. (This can be challenging for some children.)

Quickly review the names of the shapes shown in the game.
Play the Game

Play this game as a teacher-led, Whole-Class activity if children need guided support:
• naming and describing a variety of shapes
• identifying shapes regardless of their orientation
• drawing various shapes
• using locational words to describe the position of objects
• following directions with multiple steps
• playing a game collaboratively
• using common game navigation

Play this game as an independent, Small-Group activity if children understand...
• how to identify and describe a variety of shapes regardless of their orientation
• how to follow directions with multiple steps
• game navigation
...but need practice:
• drawing various shapes
• using locational words to describe the position of objects
You may want to unmute the sound as children play and mute the sound at times so that you can ask children questions. Start by inviting a child to the whiteboard to select or sketch a shape. Ask the child to describe the shape by talking about the number of sides, corners, and type of lines (straight or curved). After the child drags the shape into the Whoosh Tube and drops it, have the class look at the shape in the box. To reinforce the concept that shapes are the same when they are upside down or on their sides in the box, ask: *Is this still the same shape?* Have children respond with “thumbs up” or “thumbs down.”

Repeat these steps with other children as you continue game play. As the number of shapes in the box increases, encourage children to use location words (*below, next to, on top of, in the middle of, near, beside, between*) to describe where the shapes land. For example: “*My square landed near the triangle and on top of the trapezoid.*” To clear all the shapes, select the START AGAIN button on the bottom right corner of the screen.

Next, have children focus on strategies for *stacking* the shapes to make a *tower*. Encourage them to explain why some shapes work best for *stacking* and how they can build the highest *tower*. As they play, notice and name the strategies they use when they choose a shape for *stacking*.

When most children have mastered the game, stop playing and review key concepts. Ask:
- *What are some of the shapes you sketched and stacked?* (*triangle, square, rectangle, circle, semicircle, octagon, pentagon, trapezoid*)
- *How would you describe each of the shapes?*
- *What new words did we learn and practice?* (*sketch, stack, tower*)

Tell children: *When you sketch or draw, try using different shapes. Describe your drawing to friends and family using the names of the shapes you sketched.*
Teaching Tips: Sketch-a-Mite

Play the Game: Small-Group Activity

Time: 10 minutes

As you check in with children, encourage them to name the shapes they are choosing or sketching. Let children know that if they place the pointer over a shape, they will hear the shape’s name. Encourage planning by asking them to describe a shape before they draw it—by talking about the number of sides, corners, and type of lines (straight or curved).

When children are playing together in small groups, have one act as the “sketcher” while the others give directions for drawing shapes. Point out that they must provide a very clear description to guide the sketcher. If they are having difficulty, provide a few examples of how to describe a shape. The activities for whole-class instruction can also provide helpful practice.

Ask questions that prompt children to use key vocabulary, including locational words like on top of, next to, beside, between:

• What shape do you plan to sketch next?
• Where will you stack your shape?

To change the timer for the game (set at 5 minutes), click on the book-and-apple icon in the top right corner of the screen.

If children are having trouble using the mouse or trackpad to play the game, demonstrate how to choose, sketch, move, and drop shapes.

Encourage children to play the Termite Tower Challenge, where they will stack a tower. To play this game, they must click on the BACK button in the bottom left hand corner, click the green YES button, then click on the box next to the Cat in the Hat.
Description

Children guide Nick and Sally across a running track to scoop up shapes that fit into a trailer driven by the Cat in the Hat. He dumps the shapes near a bridge with a hole. Players patch the bridge by selecting shapes that fit into the hole.

The game has four rounds; in the first two rounds, the hole has dotted lines outlining the correct shapes.

**Round 1:** Players select two of three possible shapes to patch the bridge.

**Round 2:** Players select three of four possible shapes.

**Round 3:** Players select three of four possible shapes.

**Round 4:** Players select four of five possible shapes.

If children choose to play again, the hole-patching begins with five possible shapes.

Helpful Background

If children do not make an effort to collect the shapes, Nick still scoops up shapes in his path. Children can scoop up any shapes, but only the shapes that fit empty spaces in the trailer, in the correct orientation, will go onto the trailer. Once shapes go on the trailer, they may be merged with other shapes. For example, two squares may create a rectangle, or three equilateral triangles may create a trapezoid.

Although this game is called a race, and children are encouraged to “hurry up” as they scoop shapes, there is no actual race against time or other players.
Teaching Tips: The Great Shape Race

1. **Build Background**
   Conduct a whole-class activity that activates and builds children’s background knowledge.

2. **Get Ready to Play**
   Use the interactive whiteboard to preview the game with the whole class.

3. **Play the Game**
   Play the game as a whole-class or small-group activity.

In this lesson, children will:

- identify shapes regardless of their size or orientation
- name and describe various shapes, including triangle, square, rectangle, diamond, trapezoid
- combine simple shapes to create larger, different, and more complex shapes
- learn new vocabulary, including *scoop, patch, trailer*, and use these words in context
- use technology to learn, working individually and in groups, and use the pointer to control the movement of objects on the screen
Build Background

Time: 10 minutes

NOTE: Open two SMART Notebook™ files: Shapes–Composing and Screen Grab–Great Shape. Minimize the Screen Grab–Great Shape file to place it on the dock for easy access.

In this game, children see various triangles in different orientations and sizes. Most children are familiar with equilateral triangles with one of the vertices (corners) pointing up, but some may have difficulty recognizing other kinds of triangles. The Shapes–Composing file shows various triangles in different orientations.

To help children understand that size and orientation do not change the name of the shape, point to the first triangle and have children tell a partner the name of the shape. Then ask:

• Which of these other shapes are triangles? (all of them, even though they may look different)
• How do you know these are triangles? (they all have three straight sides and three corners)

Show children how they can make new shapes by putting two shapes together: Select, rotate, and drag the triangles, putting two together to form a new shape (such as a square, rectangle, or larger triangle). Tell the class: I made a ______ by putting two triangles together.

Ask children to turn and talk to their partners about other shapes they can create by putting two triangles together in different ways. Invite a pair of children to the whiteboard to make a new shape. Have one of them tell the class: “We made a ______ by putting two triangles together.”

Tell children that in this game, they will help Sally and Nick scoop, or pick up, shapes.

• Ask: What other ways can you use the word scoop? (scoop ice cream, scoop up beads)
• Explain that the shapes they scoop up will be used to patch a hole in a bridge; patch means to fix or cover something.
• Have children tell a partner about something they might patch. Invite a few children to share their answers.
Close the Shapes–Composing file and display the Screen Grab–Great Shape file, which shows one of the game-playing screens. Point out the trailer attached to the back of the truck that the Cat in the Hat is driving. Explain that a trailer can be attached to cars or trucks and may hold cars, boats, furniture, or other large items. It has wheels on the bottom so it can move easily on the road. Invite children to raise their hands if they have seen a trailer on the road.

Remind children that in the game they are going to play, called “The Great Shape Race,” they will help Nick and Sally scoop up shapes. These shapes will go into the trailer.

- Point out the shapes outlined on the trailer and invite children to name and describe them.
- Explain that when Nick scoops up shapes, the ones that match the outlined shapes will go into the trailer.
- Have children talk with a partner about which shapes on the track match the shapes on the trailer. Call on a few children to share their answers. Help children make the connection between the shapes on the track and the shapes needed to fill the trailer.
- Tell children that when shapes go in the trailer, they will get combined—put together—to create new shapes. Use the pen tool to show the outline of the new shapes that will be created.
- Point out that the new shapes created in the trailer will be used to patch the hole in the bridge.

Tell children that they can move the pointer on the track to move Nick and Sally, or they can touch (or put the pointer on) the shape they want Nick to collect. Let them know that even if they don’t do anything, Nick will scoop up shapes in his path.
**Teaching Tips: The Great Shape Race**

**Play the Game**

**Play this game as a teacher-led, Whole Class activity if children need guided support:**
- identifying shapes in different sizes and orientations
- using simple shapes to create shapes that are larger, different, or more complex
- playing a game collaboratively
- using common game navigation

**Play this game as an independent, Small-Group activity if children understand...**
- how to identify shapes in different sizes and orientations
- game navigation

**...but need practice:**
- using simple shapes to create shapes that are larger, different, or more complex
Teaching Tips: The Great Shape Race

Play the Game: Whole-Class Activity

Time: 10 minutes

Close the Screen Grab–Great Shape file. Start the game and have children listen to the introduction. Invite two children to the interactive whiteboard. Select the GO button to begin playing.

- Point out a shape on the trailer and invite one child to move the pointer to scoop up that shape from the track.
- Have the children take turns scooping up the shapes you select until the trailer is full.
- To engage children who are not at the whiteboard, encourage them to notice the shapes that are formed as the scooped shapes are combined in the trailer. Have them tell a partner what they notice about the shapes.

Invite several new children to the whiteboard to patch the hole in the bridge.

- Invite one child to move a shape to patch the hole. If it doesn’t fit, have the child choose and move a different shape.
- Repeat with another child for the second shape.
- If children are having difficulty selecting the correct shape, have them describe the shape of the space they need to patch and the possible shapes they can select.
- Continue playing, inviting different children to find shapes needed for the trailer and to scoop them up, until the trailer is full. Invite other children to patch the holes in the bridge. Have children who are not at the whiteboard talk to their partners about what shapes are needed to fill the trailer and to patch the bridge.

When most children have mastered the game, stop playing and review key concepts. Ask:

- What did we help Sally and Nick do in this game? (scoop up shapes, patch a hole in a bridge)
- What shapes did we scoop up and use to patch the bridge? (triangle, square, rectangle, diamond, trapezoid)
- What new words did we learn and practice? (scoop, patch, trailer)

Tell children: Practice using the new words you learned, such as when you scoop up food with a fork or spoon, find something that needs patching, or notice a trailer on the road.
Teaching Tips: The Great Shape Race

Play the Game: Small-Group Activity

Time: 10 minutes

Observe children to see if they are choosing the shapes they need for the trailer or randomly scooping up shapes. Ask:
• What shapes do you need to fill the trailer?
• What new shapes were made after the shapes were put on the trailer?

When they are patching the hole in the bridge, ask:
• How are you deciding which shapes will patch the hole and where they should go?

If children are playing in groups, have them take turns identifying shapes they need for the trailer, scooping up shapes, identifying what shapes will patch the hole, and moving the shapes to the hole in the bridge. If children are having difficulty, the activities for whole-class instruction will provide helpful practice.

Observe children to see if they are able to move the pointer to pick up the shapes they need. Make sure they also know how to move the shapes onto the bridge. If they are having difficulty, show them how to use the pointer.

Show children that they can hear the names of the shapes shown for patching the bridge by placing the pointer over a shape without clicking it.

Ask questions that prompt children to use key vocabulary, such as the names of different shapes and words such as as scoop, trailer, patch. For example, ask:
• What is Nick doing?
• Where are the shapes going?
• What shape(s) will help you patch the bridge? How do you know?
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