BE THE AGENT

ODD SQUAD

PBS KIDS

CAMP

DAY 1

TODAY'S TOPIC: GEOMETRY AND SPATIAL SENSE

Today's Theme: "Taking Shape"

Today, it's time to get in shape. In order to crack these cases, Agents will need to use their knowledge of shapes and their keen **observation** skills. They'll need to pay close attention to all the shapes around them in order to keep the classroom in tiptop shape.

Today's Case(s) and Learning Goals:

Case 1: The Case of Common Chris

Campers will engage in scientific inquiry practices as they identify and alter common shapes to protect classroom objects from Common Chris.

LEARNING GOALS

- *Identify common shapes by their attributes: rectangle, square, triangle, hexagon, trapezoid, and rhombus.*

- *Discover that single shapes can be composed of many shapes. For example, a square can be composed of two triangles.*

- *Engage in the scientific inquiry practices to explore, investigate, solve, and reflect on the case.*

Case 2: The Return of Symmetric Al

Campers will engage in scientific inquiry practices as they identify and alter symmetrical objects in order to keep them safe from Symmetric Al.

LEARNING GOALS

- *Understand symmetry (being exactly the same on both sides).*

- *Identify figures that are symmetrical.*

- *Identify figures that are asymmetrical (not the same on both sides).*

- *Find the line of symmetry (the center line or point that separates the matching halves).*

- *Engage in the scientific inquiry practices to explore, investigate, solve, and reflect on the case.*

Overiew of Today's Schedule of Activities:

|	
9:00 am	Gather and Get Ready
9:15 am	Welcome to Camp
9:30 am	Becoming an Agent
10:00 am	Case 1: The Case of Common Chris
11:00 am	The Odd Report (Recap/Review)
11:15 am	Snack Time
11:30 am	Digital Adventure Time
12:00 pm	Lunch
12:30 pm	Outdoor/Play Time
(1:00 pm)	(Optional dismissal for half-day camps)
1:00 pm	Case 2: The Return of Symmetric Al
2:00 pm	The Odd Report – Late Edition (Recap/Review)
2:15 pm	Gadget Lab
2:45 pm	Snack Time 2
3:00 pm	Outdoor/Play Time
3:30 or 4:00 pm	Dismissal

YOUR MISSION:

Calling Odd Squad! Common Chris is on his way to steal objects from the room you are in right now and all common shapes are at risk! In order to crack the case, agents will explore how shapes can be composed of other shapes and use this knowledge to stop Chris in his tracks before he swipes your most commonly-shaped objects.

LEARNING GOALS:

- Identify common shapes by their attributes: rectangle, square, triangle, hexagon, trapezoid, and rhombus.
- Discover that single shapes can be composed of many shapes. For example, a square can be composed of two triangles.
- Engage in the scientific inquiry practices to explore, investigate, solve, and reflect on the case.

MATERIALS:

- Handout: Shapes Sheet
- Shape Tracker Sheet
- Masking/painter's tape or string
- Scissors (one pair per child)
- A plain manila folder to use as the case file. You can attach the Odd Squad Seal (included in this packet) to the front and put the activity pages inside.
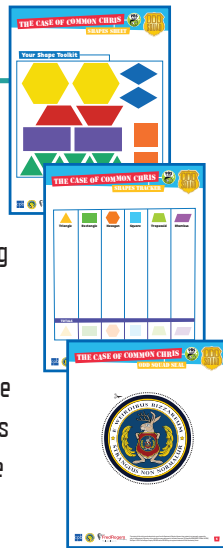
SUPPORTING THE INQUIRY PRACTICES:

As agents work through the various aspects of the case they will be utilizing a combination of math knowledge, scientific inquiry practices, and critical thinking skills to solve the case and save the day. Explore the inquiry practices and think about how each aspect of the **Implementation, Training, Casework,** and **Case Closed** sections map to the different practices. Support agents' exposure to and developing understanding of the inquiry practices by using the vocabulary words highlighted throughout this case file as you set-up, engage, and reflect on the case with your agents.

THE CASE OF COMMON CHRIS

PREPARATION:

- Find the Odd Squad episode **Crime at Shapely Manor** (approx. 22 minutes) online at pbskids.org/learn/oddsquad/afterschool.

- Print the Shapes Sheet (one per child).

- Pencils (one per child).

- The shape hunt can take place inside the classroom, in hallways, or even outside to explore nature. Wherever the shape hunt takes place, ensure that there is at least one object with every shape available to "find" – more if possible. Items should be shaped like a square (tiles, cubes, dice, etc.), a rectangle (door frame, desk, blackboard), a triangle (a coat hanger, a triangle musical instrument, a yield sign, etc.), a hexagon (honeycomb, the bottom of a pencil, a hex nut fastener (tool), etc.), a trapezoid (a lampshade, a popcorn box, some styles of handbags, etc.) or a rhombus (a kite, diamond-shaped jewelry, a caution sign, etc.). More interesting shapes can be found in the shape of trees, rocks, or clouds.

- Prepare your case file.

IMPLEMENTING THE ACTIVITY:

- Help the agents settle down by completing a fun, focusing task that explores shapes. Ask them to close their eyes and quietly concentrate as you describe a shape aloud and to use their fingers to draw the shape in the air. Agents will have fun varying the size of their "air drawings" each time.

- Once the agents are focused, view the episode **Crime at Shapely Manor** with the group. Before you begin, ask the agents to observe and notice the shapes in the episode. After you watch, ask: *What did Olive and Otto learn about shapes?* (Shapes can be composed of other shapes.) Also ask, *What about 3D shapes? We live in a three-dimensional world, so how do we find flat shapes in things that "pop" out?* (Shapes can be found on the sides of 3D shapes.)

- Let the agents know that you've received a letter from the head of Odd Squad, Ms. O. Explain, *Odd Squad needs our help. Are you ready to help crack a math case?* Read the **letter from Ms. O** aloud (below).

- Engage the children in **Training** and **Casework,** then celebrate with a **Case Closed** learning recap (following pages).

Letter from Ms. O

Agents! There you are! Something very odd has happened. Common Chris is at it again, stealing the world's most common objects for his Common Collection. This time he's after common shapes, and he's coming your way! Common Chris has already figured out the most common shape in your room, and when he shows up, he's going to take everything that is that shape! So SHAPE UP, Agents! You've got to trick Common Chris by making the most common shape in your room...less common. I'm sure you can figure out how to do it. So, are you on the case? Then hurry, because Odd Squad needs you!

TRAINING:

1. Let the children know that in order to crack **The Case of Common Chris**, they are going to need to know a lot about shapes. Give each child a Shapes Sheet handout. Describe a shape on the page and ask the agents to point to and name the shape you are describing. You can describe each of the three different shapes by talking about its **observable properties** - the number of sides, their corners and angles, etc. As the agents identify each shape, ask **"How do you know?"** questions:

   a. *How do you know it's a triangle?* (Because, it has three corners and three straight sides.)

   b. *How do you know it's a rectangle?* (It has four straight sides, and the opposite sides are equal in length.)

   c. *How do you know it's a hexagon?* (It has 6 sides.)

   d. *How do you know it's a square?* (The square is a special rectangle since all four sides are equal.)

   e. *How do you know it is a trapezoid?* (It has four straight sides and only two of the opposite sides are parallel.)

   f. *How do you know it's a rhombus?* (All four sides are the same length, opposite sides are parallel, and opposite angles are equal but do not have to be 90°. It is also called a diamond.)

2. Now have the agents cut out the shape pieces. As they cut, tell them that shapes can be tricky: sometimes shapes can work together to compose, or create, other shapes. Hold up two triangles and put them together to make a square. Ask, **What shape did I make using these two triangles?** (A square.) **See? A square can be composed of two triangles.**

3. **What other shapes can you put together to build a new shape?** Have the agents **experiment** with putting their shapes together in different ways to see what new shapes they can compose. They can use the line drawing as a guide for how the shapes may fit together.

4. **Discuss and reflect** on the agents' findings. For example: **Look, a rectangle can be composed of a square and two triangles. A large square can be composed of one rectangle, one square and two small triangles.** Ask, **Are the two triangles that make up the square still triangles?** (Yes, they are.) **Are the two squares that fit into the rectangle still squares?** (Yes, they are.) **The smaller shapes keep their shape, even though they can make up a larger shape.**

5. Present an object or a piece of furniture in the room to the group. (For example, a chair, a table, a computer, etc.) Say, **This is a three-dimensional object, but it is made up of two-dimensional shapes. What shapes do you see?** Have the agents identify as many shapes as they can.

CASEWORK:

1. Tell the agents that it's time to crack **The Case of Common Chris**. Help the agents frame and plan their investigation. Say, *To crack this case, we need to identify the most common shape in our room. That way we'll know which shape Common Chris is planning to steal.* Ask, *What do you think we should do as investigative agents to figure out the most common shape?* (Go around the room and look for shapes.) *How will we know in the end which shape has the most?* (We will count the shapes) *And how will we keep track of our counting?* Get agents to discover the need for a Shape Tracker.

2. Give each agent a copy of the **Shape Tracker** handout and a pencil and encourage them to begin their investigation. As they discover different shapes in everyday objects, they can collect data by making a tick mark under the appropriate shape in the tracker. To help them get started, you might point out that the cover of a book is a rectangle and that a door is a rectangle, too.

3. As a group, gather and tally your results on a blackboard. Say, *Let's analyze all of our collected evidence so we can draw some conclusions. Which is the most common shape in our room?* (Most likely, it will be a rectangle.) Transfer the tally marks into a bar chart, and discuss the results.

4. Now that the agents know the most common shape, help them design a solution to make the objects less common. Say, *Our mission is to make the most common shape less common. How do we change these shapes into something else? Can we use masking tape in some way to trick Common Chris into thinking they are not the most common shape?* (Turn a rectangle or a square into two triangles, etc.) In teams, or together as a group, go around the room and transform the rectangles (or whatever the most common shape was determined to be) into other shapes. Begin with your door: place a strip of masking tape or string diagonally across the door. Ask, *Now what shapes will Common Chris see?* (Two triangles.) Continue using the tape or string to create other shapes within the most common shape around the room. If agents get stuck, encourage them to think of all the ways they used their shapes to compose rectangles and other shapes during training.

CASE CLOSED:

Gather your agents into a group.

Say: *Great work, Agents! Common Chris will never spot the rectangles in our room now. As part of our casework it's important to review and reflect on the case and what we learned so we can enter it in the case file for future agents-in-training to learn from as well.*

Ask: *What did we learn about shapes? What does a rectangle/triangle/square look like? What about a trapezoid or a rhombus? What are different ways we can make, or compose, a rectangle?*

Write down the learnings/findings that the children share, close your case file and write **CASE CLOSED** across the front. Congratulate your agents on a case well-solved.
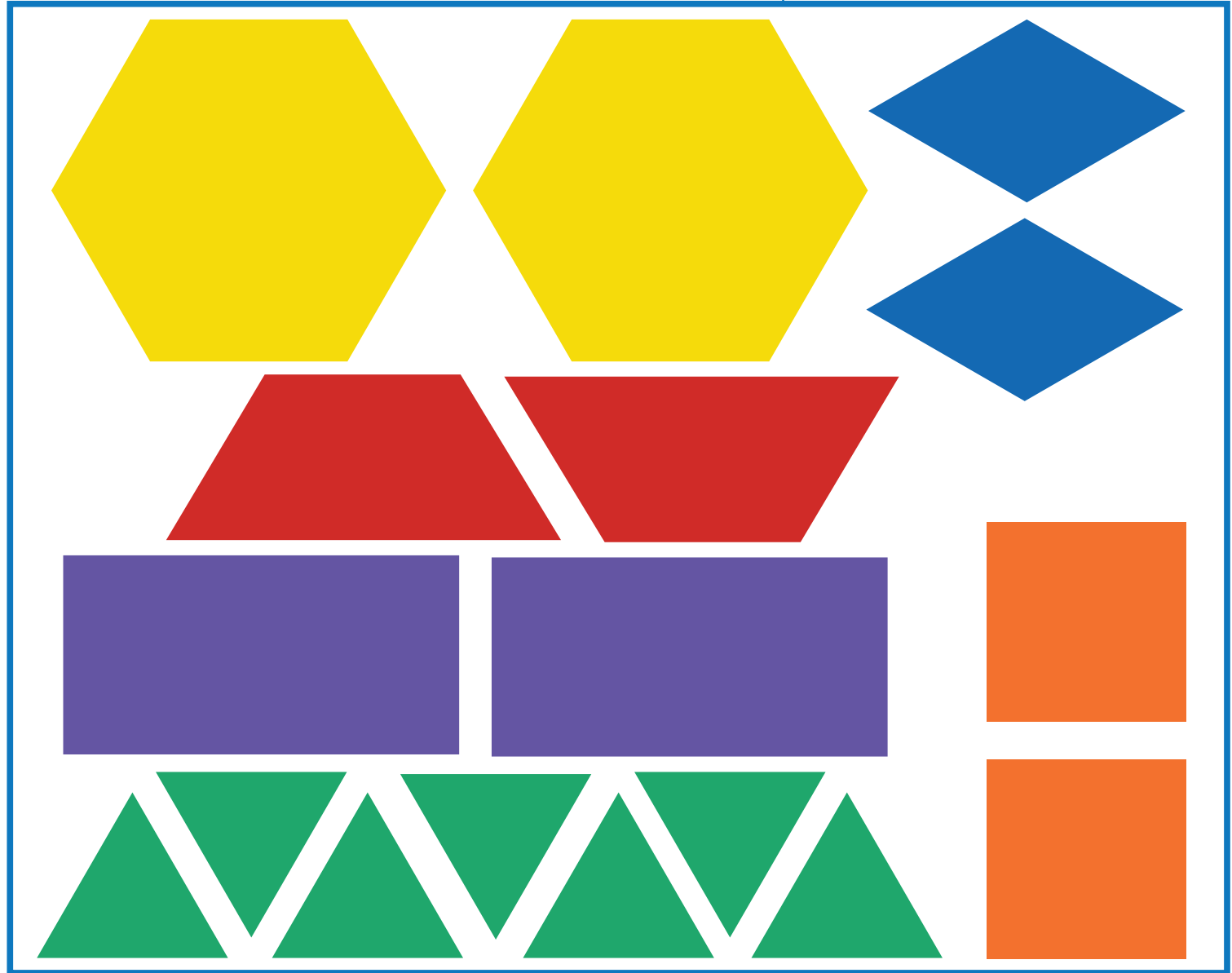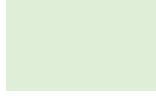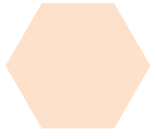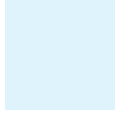
Your Shape Toolkit

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Triangle	Rectangle	Hexagon	Square	Trapezoid	Rhombus

TOTALS

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Shape Quest

Your Shape Toolkit

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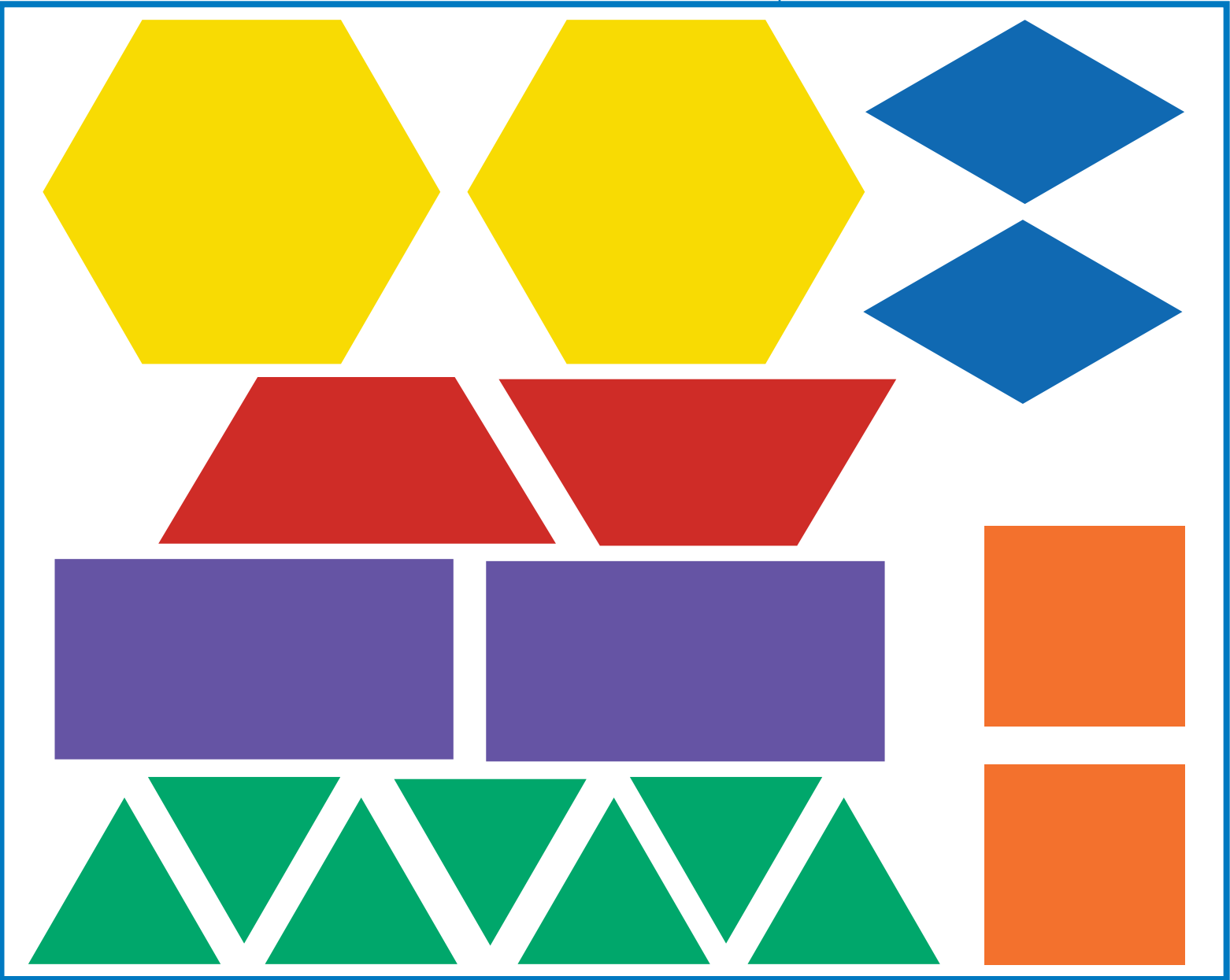
SINKING SHIP ENTERTAINMENT

Shape Quest

Figure It Out

Look at the shapes with your child. How many different kinds of shapes can you find?
As your child identifies each shape, ask "How do you know?" questions:

➡ How do you know it's a triangle? (Because, it has three corners and three straight sides.)

➡ How do you know it's a rectangle? (It has four straight sides, and the opposite sides are equal in length.)

➡ How do you know it's a hexagon? (It has 6 sides.)

➡ How do you know it's a square? (The square is a special rectangle since all four sides are equal.)

➡ How do you know it is a trapezoid? (It has four straight sides and only two of the opposite sides are parallel.)

➡ How do you know it's a rhombus? (All four sides are the same length, opposite sides are parallel, and opposite angles are equal but do not have to be 90°. It is also called a diamond.)

Cut it Out

Cut out each shape to create a toolkit. Use your shape toolkit to crack the cases on the next page.

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SINKING SHIP ENTERTAINMENT

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Shape Quest

Crack the Case

In the episode *Crime at Shapely Manor*, shapes have gone missing. It was a dark and stormy night when Olive and Otto got the call for help. Armed with their knowledge of shapes (and hopefully an umbrella!), the two Odd Squad agents try to get to the bottom of things.

Sharpen your child's knowledge of shapes with these two cases.

Be sure to have your shape toolkit handy.

Case 1: How Many Ways?

Say *I've got a secret.* There's more than one way to make a hexagon. Using different shapes, how many ways can you combine them to make a 6-sided hexagon? Have your child use the shape cutouts to figure it out.
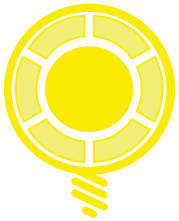
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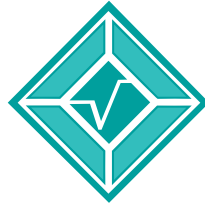
Shape Quest

Case 2: Logo Challenge

Each Odd Squad department has its own logo. They are all pictured below. Ask your child, If you had your own logo, what would it look like? Challenge your child to create a personal logo using the shapes in the toolkit.

Maintenance   Science   Medical   Security   Agent   Executive

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