



EPISODE 307

IN THE SHADOWS

Watch as the Mobile Unit saves the annual mini golf tournament by solving patterns and catching the villain, Symmetric Alice!

CASE SUMMARY

CASE: Stop Symmetric Alice and save the annual mini golf tournament!

OUTCOME: The Mobile Unit beat the villainous Symmetric Alice and solved the case! They cracked the pattern and found out that all of the shapes Symmetric Alice was stealing were symmetrical. So they created shadows of symmetrical shapes that Symmetric Alice couldn't zap.

COLD CASE EXTENSION ACTIVITY

To complete your mission, you will need:

1. A flashlight
2. 5 Opaque objects (objects that light can't pass through)
3. A dark room

Once you've gathered your materials, follow these steps:

- STEP 1:** In a dark room, place your flashlight on a surface in front of a wall.
- STEP 2:** Turn your flashlight on.
- STEP 3:** Take each of your opaque objects and put them in front of the flash light.
- STEP 4:** Record whether your shadows are symmetrical or asymmetrical.



Record your findings in a table like this!

OBJECTS	SYMMETRICAL OR ASYMMETRICAL?
Object 1	
Object 2	
Object 3	
Object 4	
Object 5	

SYNOPSIS FOR TEACHERS/PARENTS:

In this episode the Mobile Unit tries to stop a villain from stealing various objects to save the annual mini golf tournament. To do this, they must solve different patterns and use their knowledge about shadows and symmetrical shapes to save the day!

This episode teaches children about three important concepts: 1) how to recognize, describe and extend different patterns, 2) how to create shadows and discuss their properties, and 3) how to recognize whether a shape is symmetrical or asymmetrical.

CURRICULUM EXPECTATIONS:

Grade 2 Science: Understanding Matter and Energy – Properties of Liquids and Solids

- 2.6** Use appropriate science and technology vocabulary, including clear, opaque, runny, hard, and granular, in oral and written communication
- 3.2** Describe the properties of solids and liquids

Grade 1 Mathematics: Geometry and Spatial Sense

- › Identify and describe common two dimensional shapes and sort and classify them by their attributes using concrete materials and pictorial representations
- › Locate shapes in the environment that have symmetry, and describe the symmetry
- › Compose patterns, pictures, and designs, using common two-dimensional shapes



Grade 1 Mathematics: Patterning and Algebra

- › Identify, describe, and extend, through investigation, geometric repeating patterns involving one attribute (e.g. colour, size, shape, thickness, orientation)
- › Identify a rule for a repeating pattern

Grade 2 Mathematics: Geometry and Spatial Sense

- › Identify and describe various polygon and sort and classify them by their geometric properties, using concrete materials and pictorial representations
- › Locate the line of symmetry in a two-dimensional shape

Grade 2 Mathematics: Patterning and Algebra

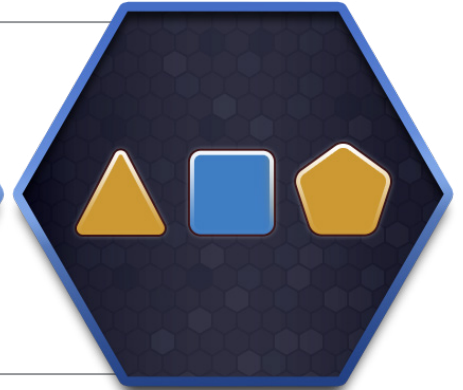
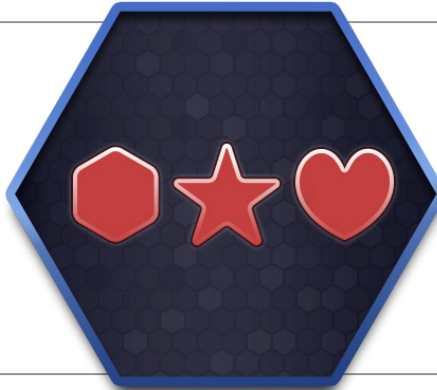
- › Represent a given growing or shrinking pattern in a variety of ways (e.g. using pictures, actions, colours, sounds, numbers, letters)
- › Demonstrate, through investigation, an understanding that a pattern results from repeating an operation or making a repeated change to an attribute



THIS OR THAT!

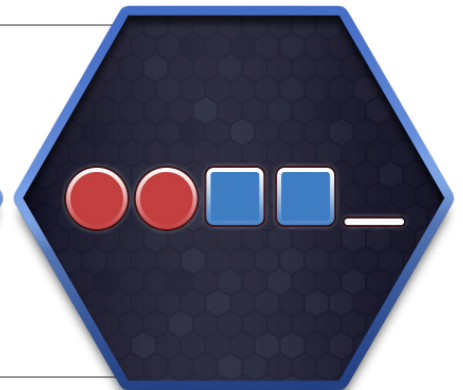
QUESTION #1

Which of these is a colour pattern?



QUESTION #2

Which pattern needs a blue triangle next?



QUESTION #3

"Transparent" means light can pass through it. Which of these objects is transparent?

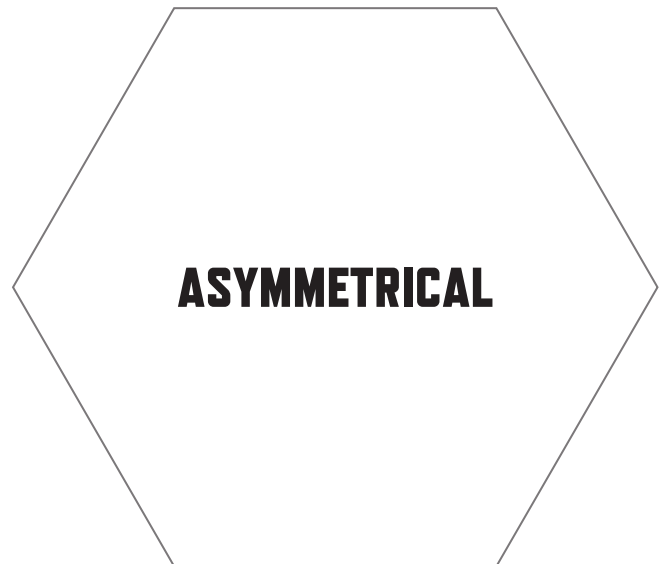
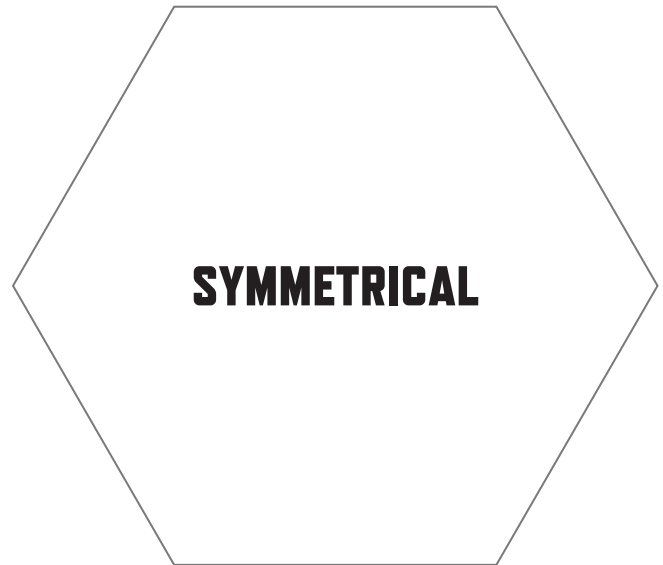
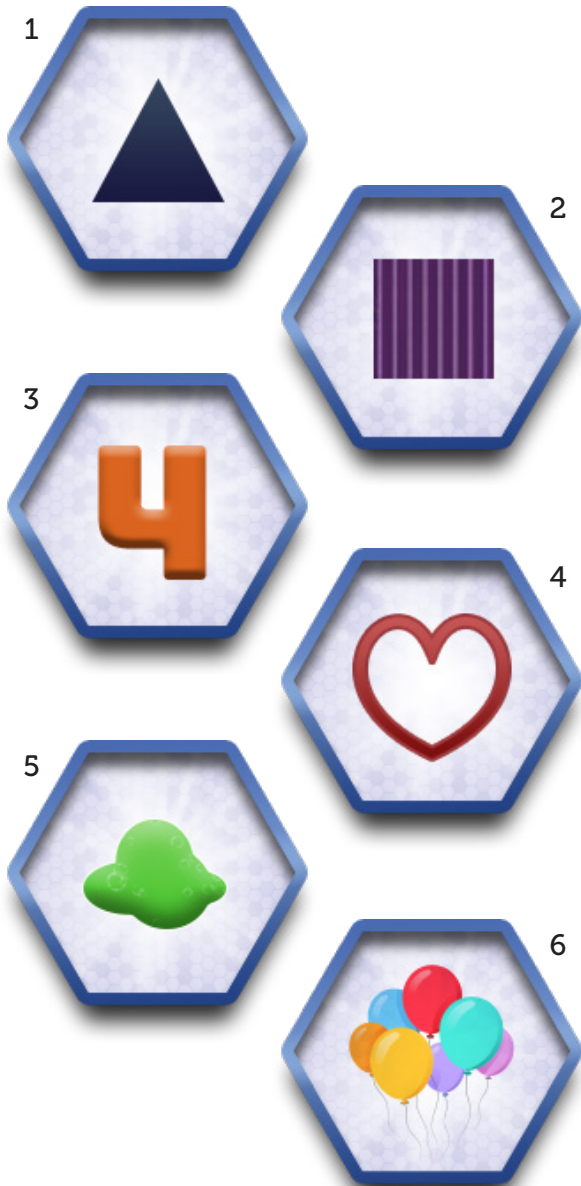


1. Image 1. 2. Image 1. 3. Image 2.



SORTING GAME

Sorting time! Sort these items by drawing a line from the object to the right category.

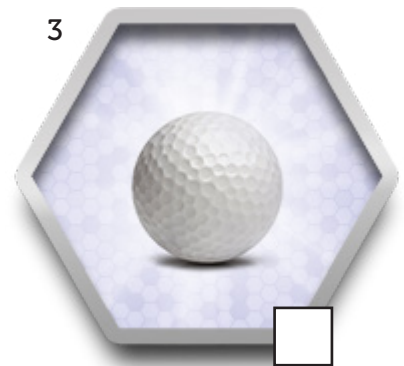
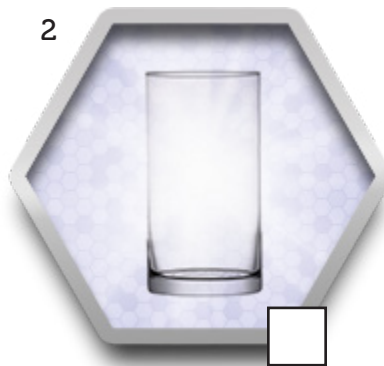


1. Symmetrical. 2. Symmetrical. 3. Asymmetrical. 4. Symmetrical. 5. Asymmetrical. 6. Asymmetrical.



CATEGORY SELECTION

Select all the opaque objects. Opaque means that light CANNOT pass through.



1. Opaque. 2. Transparent. 3. Opaque. 4. Opaque. 5. Transparent.



WORD JUMBLE

Unscramble the letters to find the missing word!

1



To make a _____, you
need a light source and an object.

SHOWAD

2



A _____
is something that repeats.

TRNPATE

3



To make a shadow _____, you
must move an object closer to a light source.

BIGRGE

1. SHADOW. Fact: A shadow is the dark shape made when an object blocks the light. 2. PATTERN. Fact: A pattern is something that repeats and follows a rule. 3. BIGGER. Fact: Moving an object closer to a light source makes a shadow bigger. Moving an object farther away makes a shadow smaller.



PUZZLE

Cut along the solid white lines to make a puzzle.

