

THE RETURN OF SYMMETRIC AL



YOUR MISSION:

It's a case for the Odd Squad: Symmetric Al is at it again, stealing objects that are the same on both sides. Agents will work as a group to identify and protect those items that have matching halves so they won't get caught up in Al's stealing spree!

LEARNING GOALS:

- Understand symmetry (being exactly the same on both sides).
- Identify objects that are symmetrical.
- Identify objects that are asymmetrical (not the same on both sides).
- Find the line of symmetry (the center line or point that separates the matching halves).

MATERIALS:

- Handout: [Odd Squad Department Symbols](#)
- Scissors
- A long, narrow strip of paper *or* a flexible measuring tape
- 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.



PREPARATION:

- Find the Odd Squad episode **My Better Half** (approx. 11 minutes) online at pbskids.org/learn/oddsquad/afterschool.
- Print the [Odd Squad Department Symbols](#) handout (one per child). Cut out one of each symbol shape to use as an example during Training.
- Prepare your case file.

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IMPLEMENTING THE ACTIVITY:

- Help the children settle down by completing a fun, focusing activity that explores symmetry. Place the children in pairs. Have each child stand next to their partner and have them join hands on one side. Then, have them use their bodies to create mirror images of each other. They can move their arms and legs in different directions, but they must match on each side. Explain that when they do so, they create a symmetrical shape. The place where their hands meet creates the line of symmetry. (You may wish to model this first with one pair of children.)
- Once the children are focused, view the video **My Better Half** with the group. Before you begin, ask the children to pay attention to the things Olive and Otto learn about symmetry. After you watch, ask: **What did Olive and Otto learn about symmetry and symmetrical objects?** (When an object has symmetry, it means that one half is exactly the same as the other half.)
- Tell the children that you've received a letter from the head of Odd Squad, Ms. O. Explain: **The 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. We are in a whole mess of trouble. Trouble, I tell you! Symmetric Al is taking half of any symmetrical person, place or thing, just as he did at Odd Squad Headquarters. Look around: can you spot an object where one half is exactly the same as the other half? That means it's symmetrical, and that means Al just might take one of the halves. Do you see a book? Is it symmetrical? Well, in just a few minutes, half of that book might be gone. How about your pants? Are they symmetrical? If they are, I hope you brought a spare pair! It's time to get to work! You've got to find all the symmetrical objects in the room and make them asymmetrical. It's the only way to keep Al from taking half. So, are you on the case? Then hurry, because Odd Squad needs you!



TRAINING:

1. Let the children know that in order to stop **Symmetric Al**, they will need to know a lot about symmetry. Give each child an [Odd Squad Department Symbols](#) handout.
2. Hold up one of your pre-cut shapes. Tell the children that you are going to find out if the shape is symmetrical. Fold the shape in half and point out the line of symmetry. Explain: **If this shape is exactly the same on both sides of this line, it is symmetrical. If it is different, it is not symmetrical. When something is not symmetrical, it's called asymmetrical.** Encourage children to investigate the shape, and point out similarities and differences between the two halves. Ask: **Is the shape symmetrical or asymmetrical?**

continued

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TRAINING CONTINUED:

3. Instruct the children to cut out each of the department symbol shapes and fold them in half to find the line of symmetry. Challenge them to figure out whether the shapes are symmetrical or asymmetrical. Are they surprised to find that the shapes are all symmetrical?
4. Now tell the children that so far, they looked only at outlines of shapes to determine which were symmetrical — but explain that symmetrical objects must be exactly the same on both sides. This means their features or designs must also be the same on both sides.
5. Ask the children to look back at the actual department symbols on the handout. Say: ***Are the features exactly the same on both sides? So, are the symbols symmetrical after all?*** NOTE: If you feel this part of the activity is too difficult for the children in your group, you can instead have them color designs onto one half of each symbol shape they cut previously, to make them asymmetrical.

CASEWORK:

1. Let the children know that it's time to protect the room from **Symmetric Al's** return. Say: ***Just look around at all the objects in danger of being ruined.*** As a group, take a trip around the room and have the children identify all of the objects that are symmetrical. Place your strip of paper or measuring tape down the center of each object to show the line of symmetry.
2. After you've identified all of the symmetrical objects, explain: ***We need to make these objects asymmetrical, which means they are NOT the same on both sides. That's the only way to keep Symmetric Al from taking half of each one. We must make sure that their halves are NOT the same.***
3. Have the children collect the Odd Squad Department Symbols they cut out earlier. Together, or in teams, travel around the room, taping the symbols to one half of each symmetrical object to alter its appearance and make it asymmetrical.
4. When you are done, take a look at all of the asymmetrical objects you have created.

CASE CLOSED:

Gather the children back into a group.

Say: ***Great work, agents! Symmetric Al will skip right over this room. He'll never suspect we have anything symmetrical in here. As part of our training, we like to review what we learned from the case and enter it in the case file so that future agents-in-training can learn from it.***

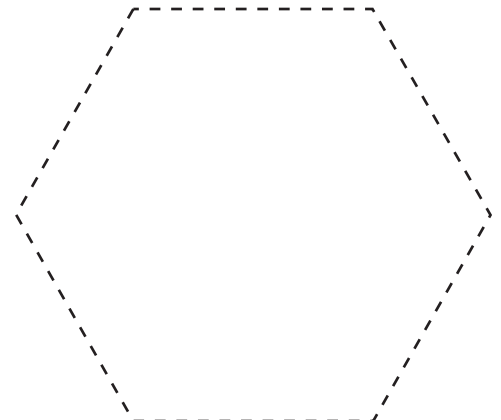
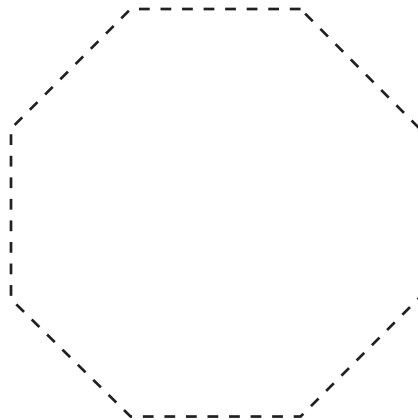
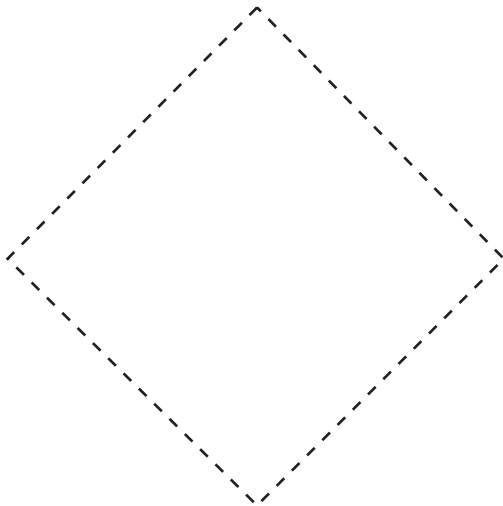
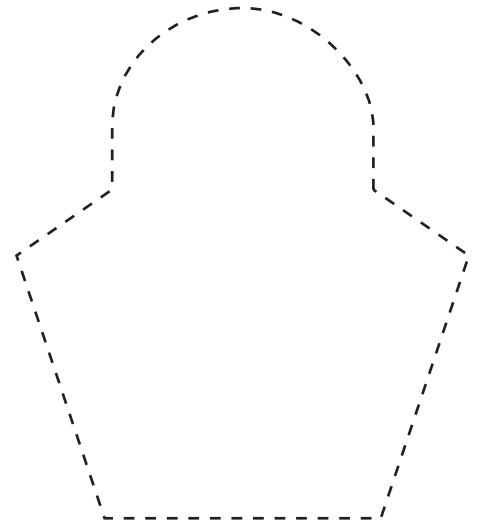
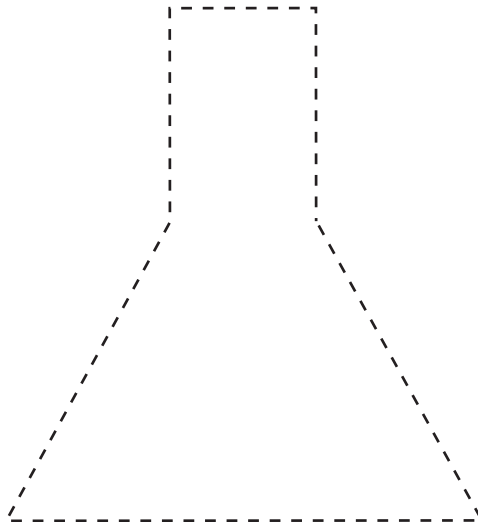
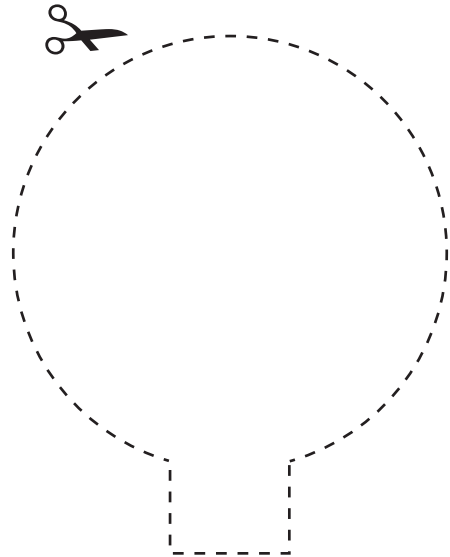
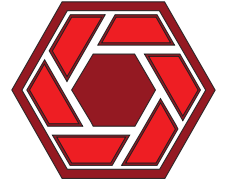
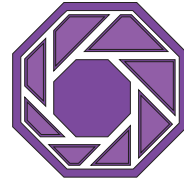
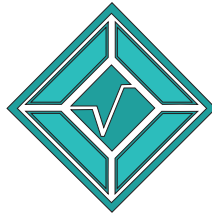
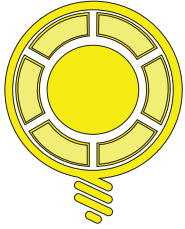
Ask: ***What does it mean when something is symmetrical? What does it mean when something is asymmetrical? How can you tell if something is symmetrical or asymmetrical?***

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.

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DEPARTMENT SYMBOLS



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ODD SQUAD SEAL



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