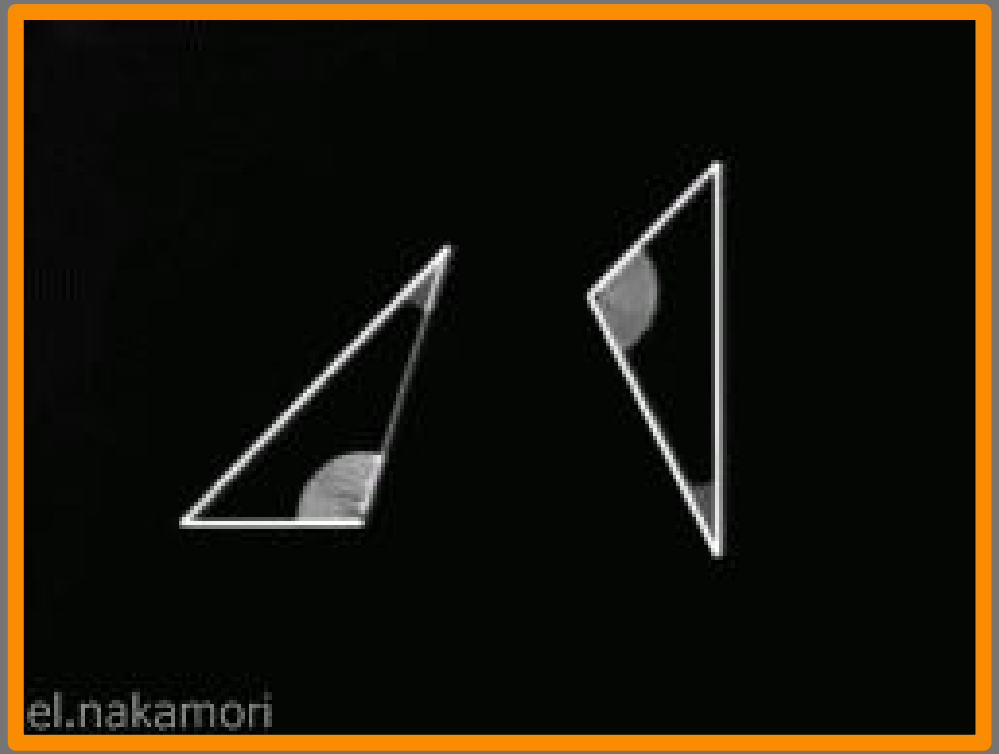
Naming the Moves

Lesson 2

CCSS Standards: Addressing	• 8.G.A.1

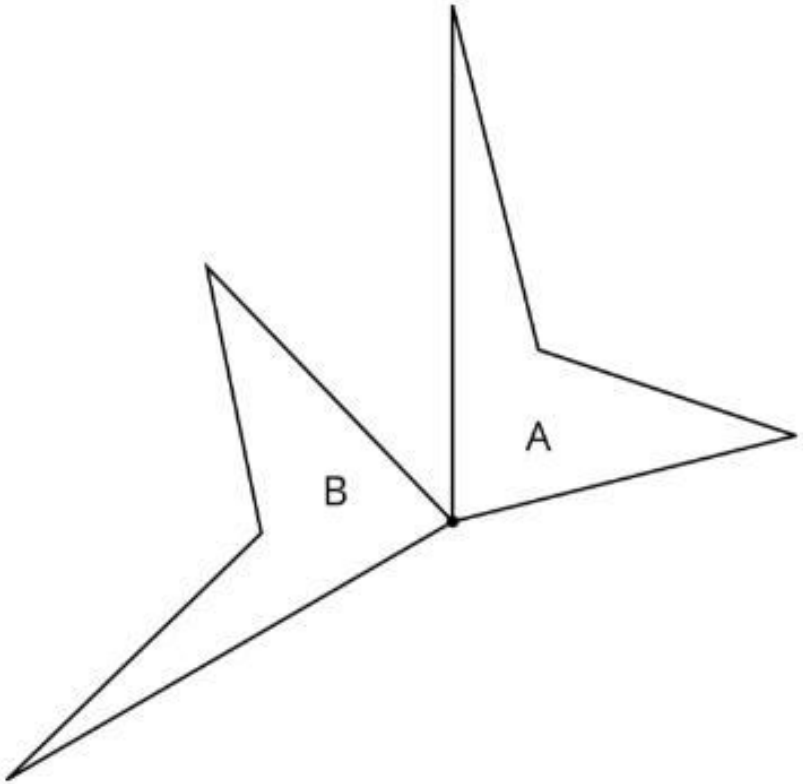
Let's be more precise about describing moves of figures in the plane!



A Pair of Quadrilaterals?

Warm Up 2.1

Estimate the angle of rotation.

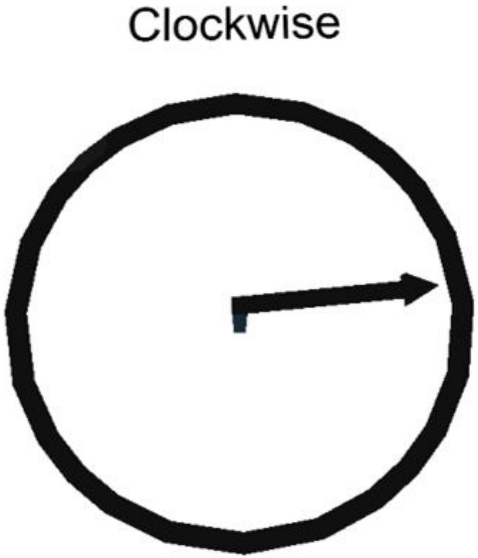


Begin by thinking on your own. (2 min.)

. . . . .

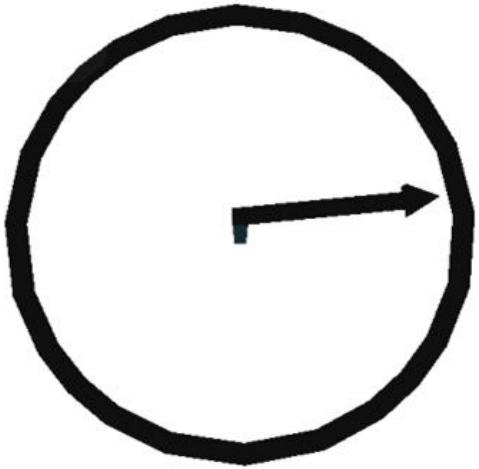
Share your thinking with your team.

clockwise



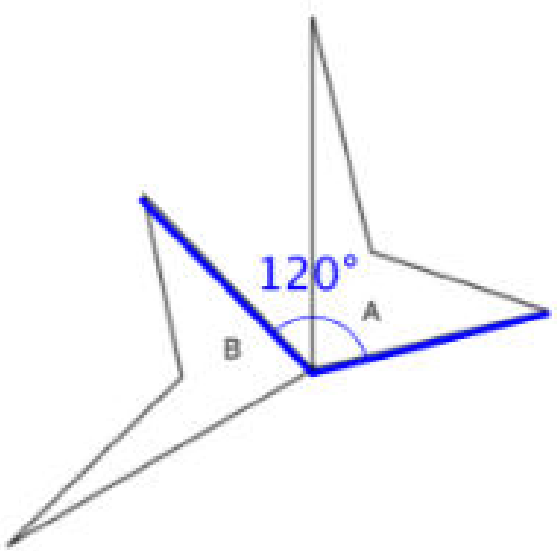
rotating in the direction of the hands on a clock

counterclockwise



rotating in the opposite direction of the hands on a clock

center of rotation



the vertex shared by Figure A and Figure B

Figure B is the **image** of Figure A for the rotation.

How Did You Make That Move?

Activity 2.2

- Think Pair Share
- Critique, Correct, Clarify
- Collect & Display

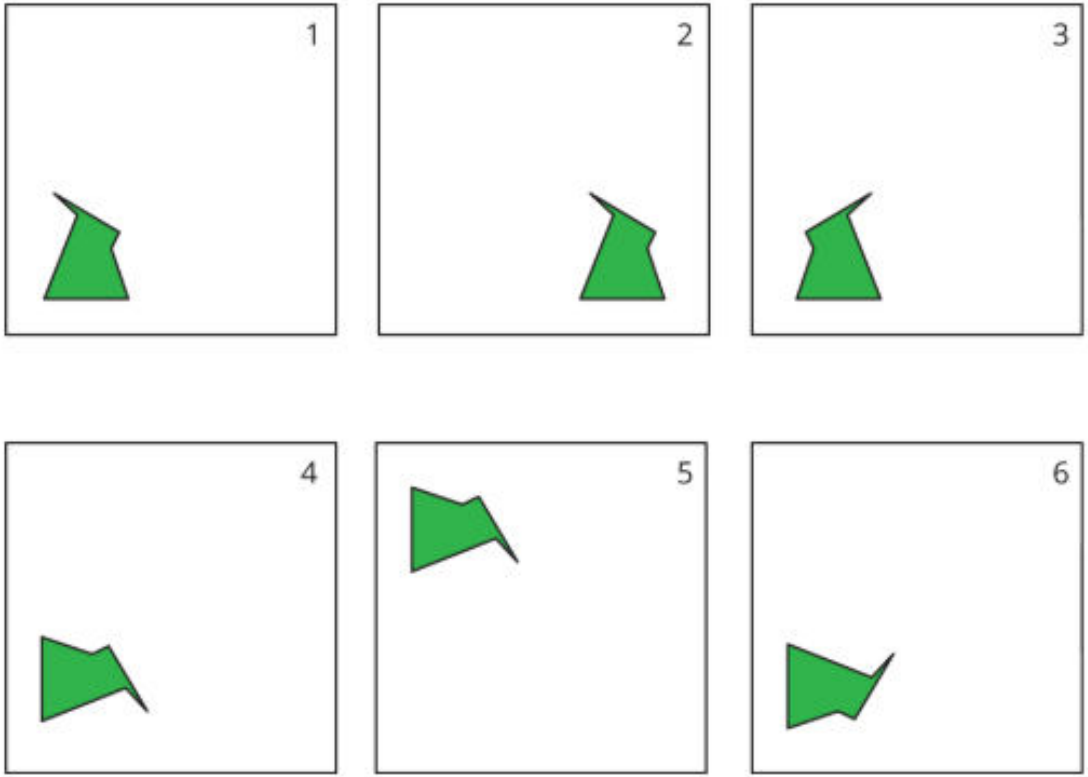
Describing Moves

Describe moves as you did in the previous lesson...

but this time there is a new move to look out for!

Begin with Quiet Work Time. (5 min)

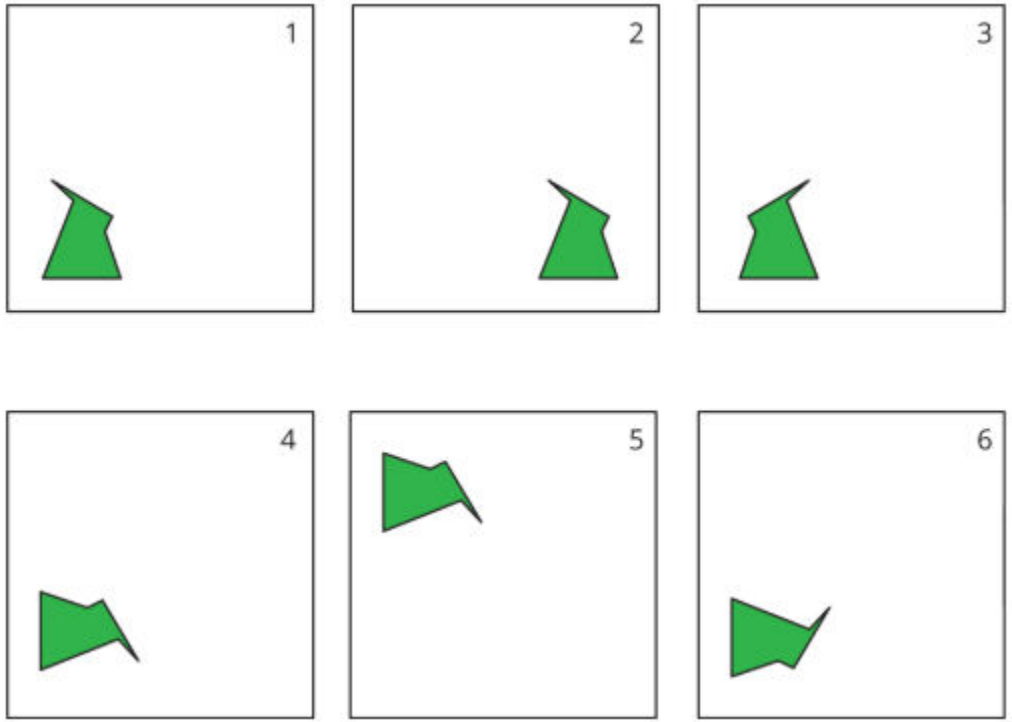
Slides Turns Clockwise Counterclockwise



How is the motion from panel 2 to panel 3 different than the ones we discussed yesterday?

Is there anywhere else that happens in this cartoon?

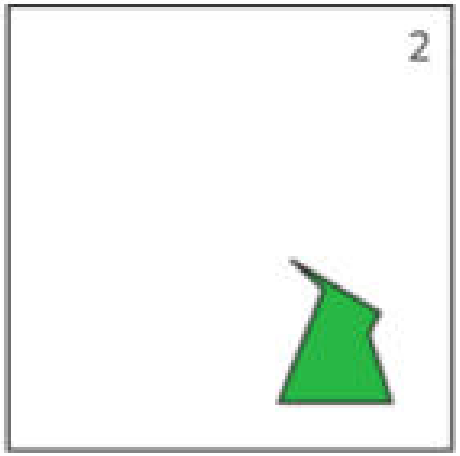
What features of the image help us see that this move is happening?

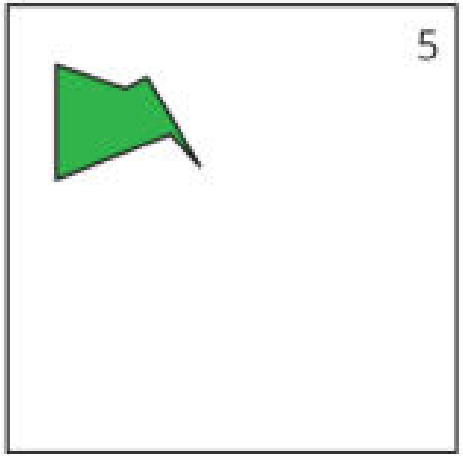


What is the direction of the “beak” of the polygon?

Here is a mirror. The polygon in frame 3 is what the polygon in Frame 2 sees when it looks in the mirror.

Are there any other mirror lines in other frames?





Move Card Sort

Activity 2.3

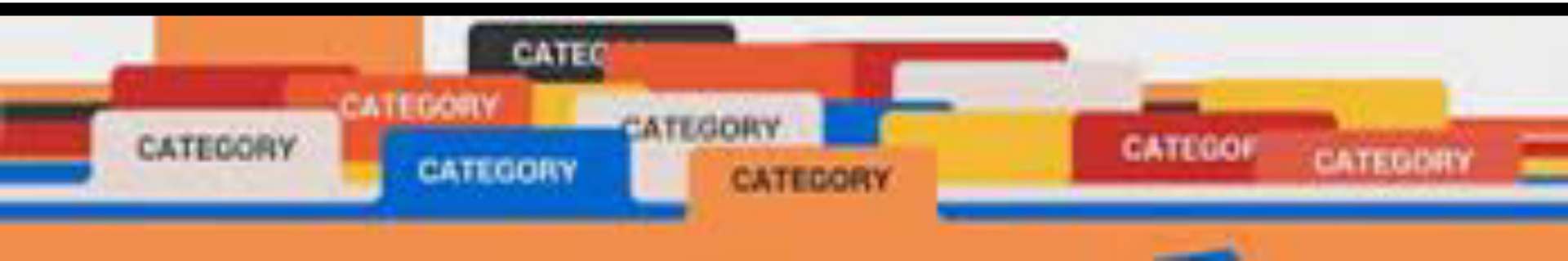
- Collect and Display
- Take Turns

Sort the 9 Cards into categories according to the type of move they show.

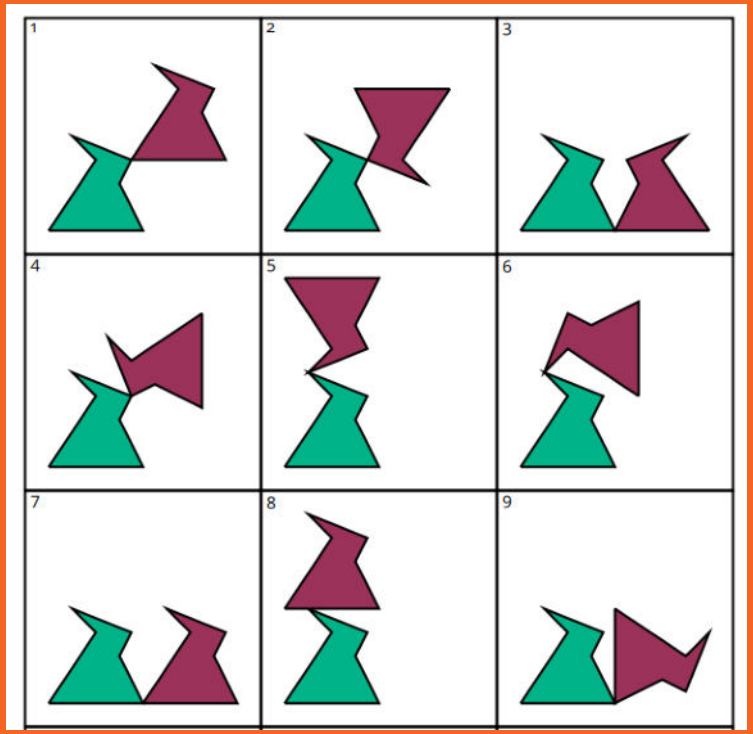
After consensus of categories, take turns placing a card in the category and explaining why.

★ When it is not your turn, listen to your partner's reasoning and make sure you understand their reasoning.

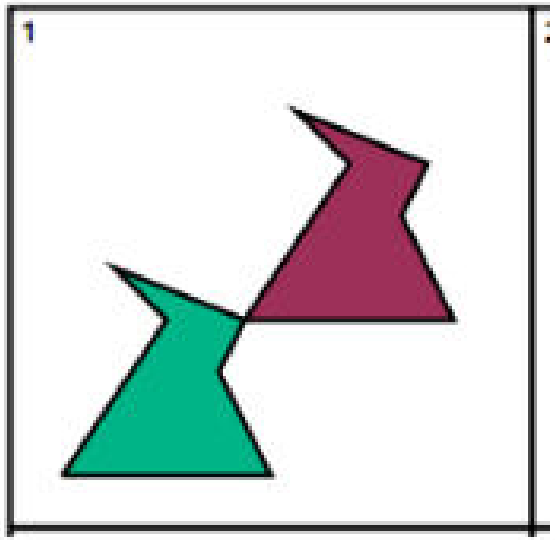
(10 min)



How did you name your categories?

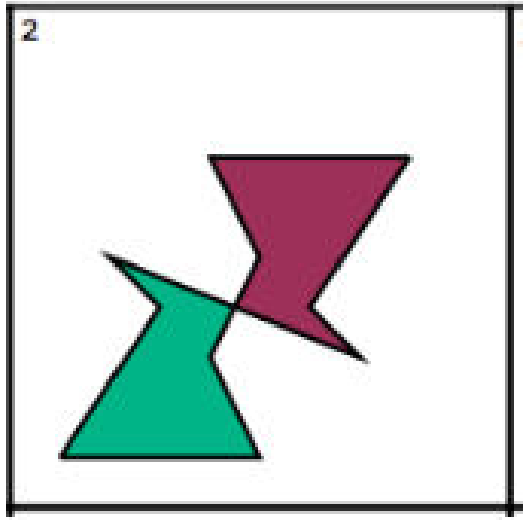


translation



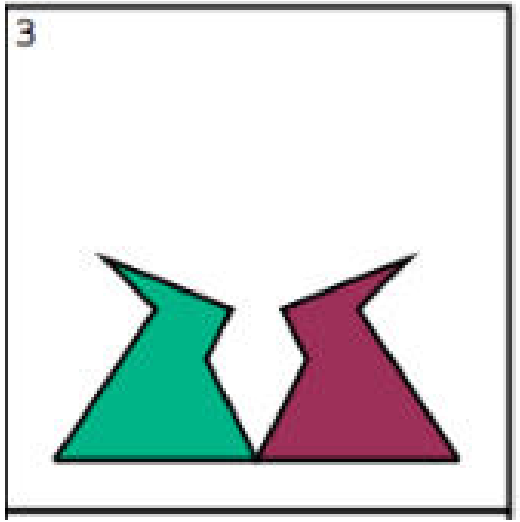
slide a figure without turning it

rotation



turn a figure about a point, called the center of rotation

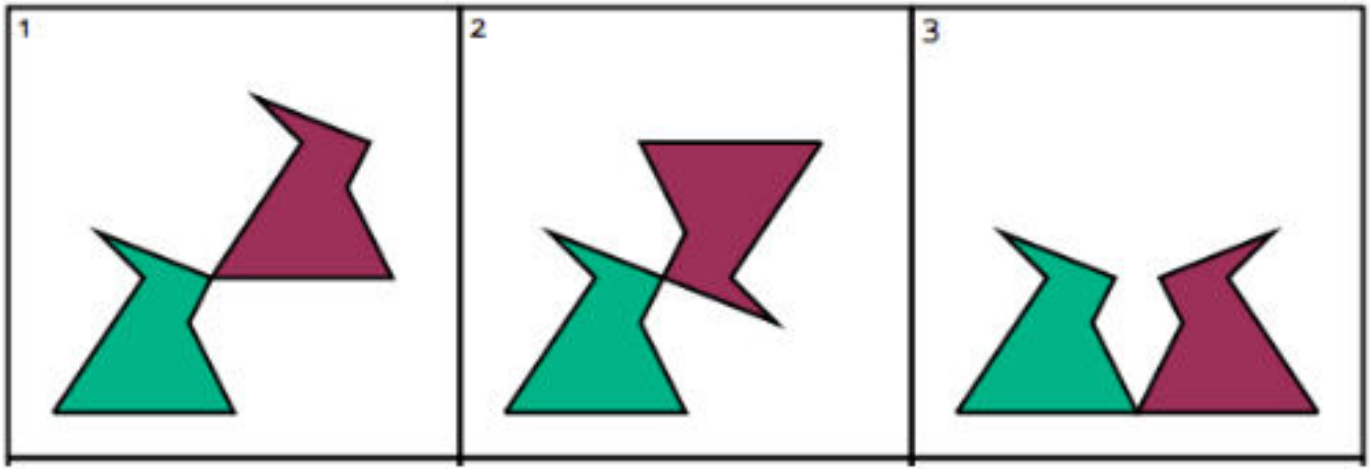
reflection



place point on the opposite side of a reflection line

corresponding points

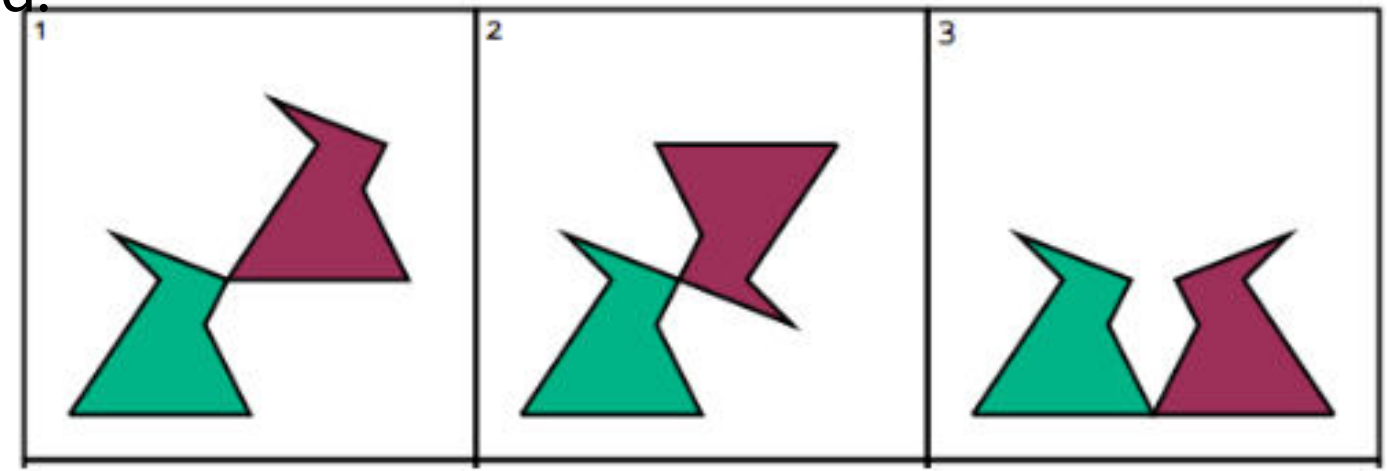
If we see the figures as rabbits…
then the ear tips in the original figure and the ear tips in its images are *corresponding points*.



image

a figure after a transformation is applied;

For each of the cards, one figure is the image of the other figure after a translation, rotation, or reflection has been applied.



We encountered a new type of move that was different from yesterday.

What can you tell me about it?

It's like a mirror image…

You can't make the move by sliding or turning; the figure faces the opposite direction.

We gave mathematical names to the three types of moves we have seen.

What are they called?

Translation → slide

Rotation → turn

Reflection → mirror image

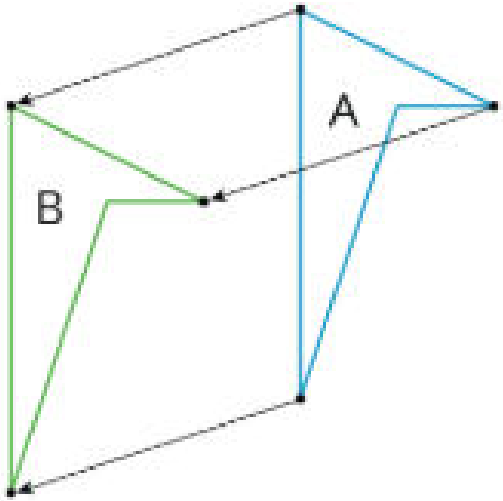
What do we mean by **corresponding points**?

a point that is in the same part of the figure in both the original figure and the image

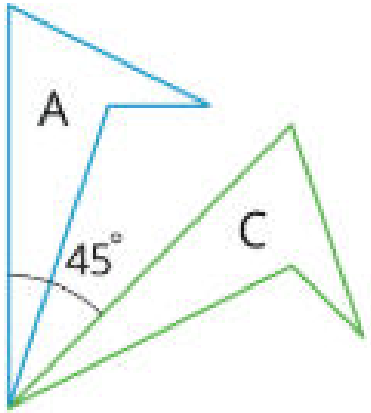
What do we mean by a figure's **image**?

the resulting figure after a move has been performed

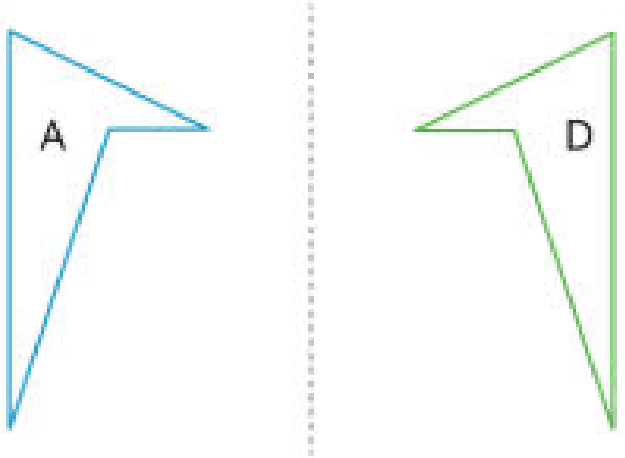
A **translation** slides a figure without turning it. Every point in the figure goes the same distance in the same direction. For example, Figure A was translated down and to the left, as shown by the arrows. Figure B is a translation of Figure A.

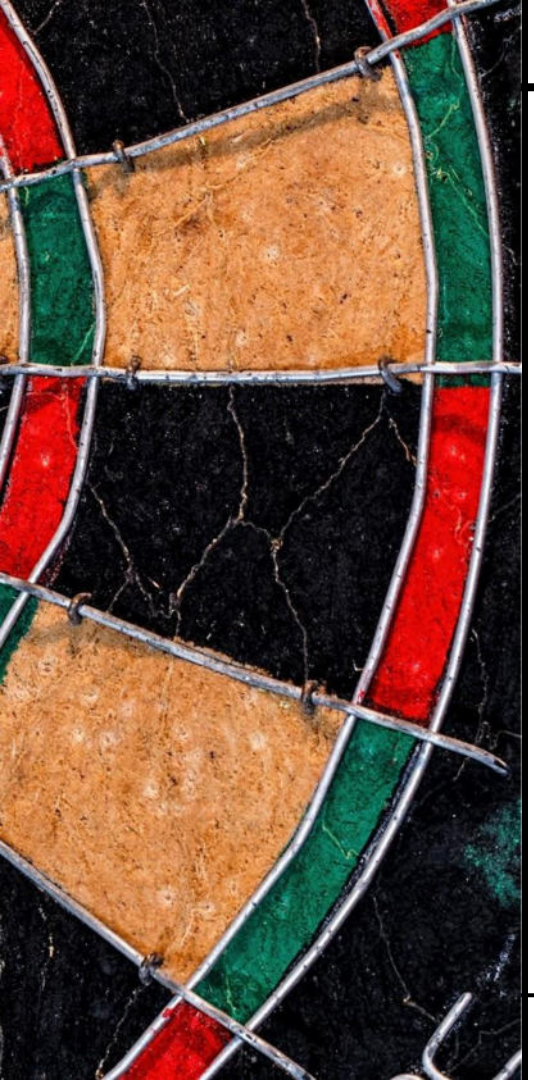


A **rotation** turns a figure about a point, called the center of the rotation. Every point on the figure goes in a circle around the center and makes the same angle. The rotation can be **clockwise**, going in the same direction as the hands of a clock, or **counterclockwise**, going in the other direction. For example, Figure A was rotated 45° clockwise around its bottom vertex. Figure C is a rotation of Figure A.



A **reflection** places points on the opposite side of a reflection line. The mirror image is a backwards copy of the original figure. The reflection line shows where the mirror should stand. For example, Figure A was reflected across the dotted line. Figure D is a reflection of Figure A.





Today's Goals

- ❑ I know the difference between **translations, rotations,** and **reflections**.
- ❑ I can identify **corresponding points** before and after a transformation.

Is It a Reflection?

Cool Down 2.4