

Pop-Ups

Grades 3+ | Students Served: 25

ELEMENTARY



Essential Questions

How does design affect the stability of a structure?

What are the most effective techniques for creating exciting pop-up books?

In your own words, what is engineering?

Career Connections:

- Mechanical Engineer
- Artist/Illustrator
- Author
- Animator

STEM Connections

Science

- Levers
- Compound machines
- Force and motion

Technology

- Materials science
- Troubleshooting

Engineering

- Engineering design
- Designing to specifications

Math

- Measurement
- Congruent shapes

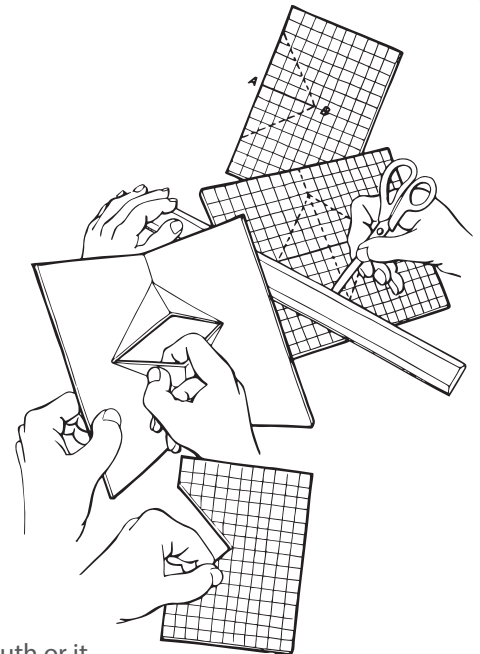
Sample Activity

Big-Mouth Creature

Challenge

Design an animal or imaginary creature that has a pop-out mouth.

- You need two 20 cm x 20 cm cards, scissors, a ruler, a pencil, a glue stick, clear tape, and markers.
- Fold both cards in half neatly and accurately.
- On one of the cards, mark two points: 5 cm up and 5 cm down from the center of the fold.
- Mark two more points: 5 cm right and 5 cm left of the center of the fold.
- Draw diagonal lines connecting all four points.
- Fold the card together and use scissors to cut along the center of the diamond. Cut from the center point out toward the point where the diagonal lines connect.
- Use the back of the scissors to score the marked lines and fold along the scored lines.
- When the card is opened, the mouth will open.
- Use the other card to glue the card with the mouth cutout. Avoid gluing the mouth or it will not pop open.



Discussion

What modifications can be made to make the mouth different? What happens if your folds are not neat and accurate? What are more pop-up features you can add?