

How Shapes and Forms Are Used

4th-5th grades

Overview

In this build series, students will reflect on various shapes and forms and how they are used in daily life. They will discuss why certain shapes and forms are used in particular situations and consider why others are not selected for this purpose. They will also describe a useful object that could be created using this shape or form.

Connect to Curriculum

This build series can be part of classroom activities that involve:

Geography:

- Classifying two- or three-dimensional figures into categories based on their properties.
- Representing two- or three-dimensional shapes in the context of solving real-world problems.

Before You Begin

Assess and encourage prior learning by:

- Introducing and defining key vocabulary: *form*, *shape*, *three-dimensional*, and *two-dimensional*.
- Brainstorming a list of specific shapes and forms, as a class.
- Investigating the attributes of each shape or form.
- Sending students on a scavenger hunt to collect as many different shapes as they can find in their classroom, school, or community. It is a good idea to break students into groups and assign a particular shape or form to each.

Build and Share

Have students build and share their models by following the steps outlined in the Challenge Cards provided with this activity.



Tip:

Consult the Quick Start Guide of this activity pack for ideas on classroom management and organization.



Vocabulary:

- **form:** the structure of an object in three dimensions, such as a cube or sphere
- **shape:** the structure of an object in two dimensions, such as a square or circle
- **three-dimensional:** having the dimensions of height, width, and depth
- **two-dimensional:** having the dimensions of height and width only

Reflect on the Experience

Encourage students to record and reflect on their models and ideas.

Extensions

After completing the build series, encourage further learning by:

- Creating a three-dimensional model of the object discussed in the Conclude build challenge created from found materials including a written explanation of how the shape or form is used and why it is effective. (Language Arts, Mathematics, Visual Arts)
- Creating a blueprint for the useful object suggested in the Conclude build. Label the drawing with information about the dimensions of the shapes or forms used to create the object, as well as its properties. (Mathematics, Science)
- Writing a persuasive journal article to show favor for the “Most Useful” shape or form. Including information about how commonly the shape or form is used in common objects and structures or about how unique its properties are. (Mathematics, Language Arts)

Facilitating Questions:

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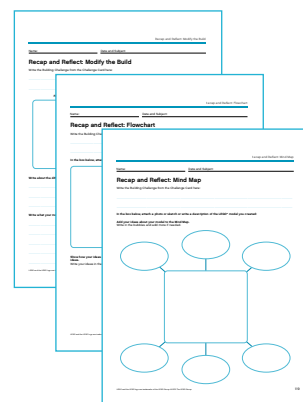
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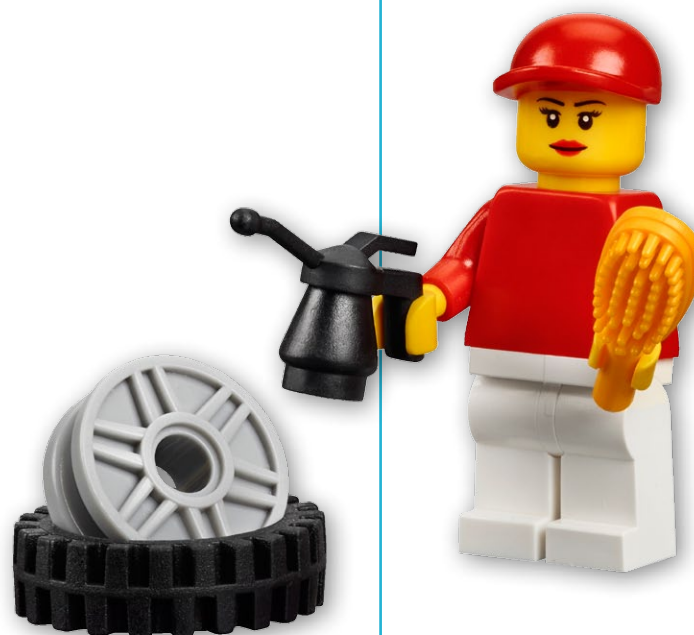
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Tip:

Use one of the Recap and Reflect Worksheets available in the Support Materials section of this activity pack to document the build experience.



Topic: How Shapes and Forms Are Used

1 Think about



These four building tasks will help you express your thoughts and ideas about a particular shape or form that you encounter in daily life.

Build: Build a model that represents how the shape or form you chose is used in daily life.

Building Time: 3-4 minutes

Share: When the building time is up, take turns telling each other about what you have built.

Keep your model on your own building plate.



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2 Remember



Now that you've thought about a specific shape or form and how you use it, it is useful to recall why you chose to use that shape or form in that situation.

Build: Build a model that represents why you think the shape or form you chose is used in this situation.

Building Time: 3-4 minutes

Share: When the building time is up, take turns telling each other about what you have built.

Keep your model on your own building plate.



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3 Imagine



Now you will use your imagination and creativity to think about the reasons the shape or form is more useful than other shapes or forms for this purpose.

Build: Build a model that represents what would happen if another shape or form was used in its place.

Building Time: 3-4 minutes

Share: When the building time is up, take turns telling each other about what you have built.

Keep your model on your own building plate.



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4 Conclude



Now you will build a model that sums up what you have learned so far.

Build: Build a model that represents a useful object you could create from the shape or form you chose.

Building Time: 3-4 minutes

Share: When the building time is up, take turns telling each other about what you have built.

Keep your model on your own building plate.



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