STEM Challenge: Natural Homes

Task: Students will work in small groups to design a house for two small toys using only natural resources.

Getting Started

Build Content Knowledge
If you wish to provide students with background knowledge about natural resources, reproduce and distribute pages 18 and 19. Preview the Visual Literacy page with students. Then read the Science Concept page to students as they follow along, or, if they are able, have them read it independently. Next, discuss the science concept and the visual literacy graphics on those pages.

Introduce the Challenge
Reproduce and distribute the STEM Challenge on page 20. Then have students read the challenge and the testable goals. Discuss the materials with the students and decide on a plan for gathering the materials.

Next help students research natural resources in their neighborhood. Ask them to think about how science, technology, engineering, and math can be used to create a home using only natural resources. Finally, have students independently brainstorm and draw their ideas on page 20.

Completing the Challenge

Assign students to small groups.

Optional: Model the Design Process
You may wish to reproduce and distribute page 22 to students. This resource is intended to help students think about how to approach each step in the design process.

Design Process Worksheets
Reproduce and distribute the STEM design process worksheets to students. Provide support when needed to help students describe and evaluate their plans.

After the Challenge
Have students share their design processes, compare their homes, and brainstorm ideas for improvements.
Natural Resources

Our world is made up of natural resources. **Natural resources** are things that come from nature. They are not made by people. Water, plants, animals, and soil are all natural resources.

Different places in the world each have their own natural resources. Seashells, sand, and sea gulls are natural resources found along the shoreline of California. In the savannah of Kenya, some natural resources are mud, grass, and lions.

A group of people called the Maasai use only natural resources to build their homes. The Maasai live in Kenya and Tanzania. These countries are in East Africa. The Maasai build huts where they eat, sleep, and cook. The huts are made from mud, grass, tree branches, and cow dung. A fence made from wood and thorn bushes helps protect the huts. The thorns act like sharp needles. The fences keep out strangers and wild animals such as lions and hyenas. Without natural resources, people on Earth would not be able to survive.
Natural resources are things that come from nature.

- water
- plants
- animals
- soil

Maasai huts are made from natural resources.

Maasai huts are protected by thorn fences.
**Natural Homes**

**Challenge:** Build a house that will fit two small toys and has a fence around it.

**Testable goals:** The house fits two small toys, stands on its own for five minutes, and has a fence to protect it.

**Research:** Look at pictures of Maasai huts and fences. Notice the things used to make them. Find out where the Maasai live and the natural resources that are in that area. Look at the natural resources around your neighborhood.

**Brainstorm:** Think about all the different ways a house can look. Think about the house you want to build. Then draw a picture of it in the box.
Suggested Materials List

**Item for each group**

☐ newspapers or plastic tubs to keep desks clean while working

**Items for the whole class**

☐ clay
☐ sand
☐ water
☐ twigs or sticks
☐ rocks
☐ leaves
☐ grass
☐ feathers

**Items for testing**

☐ two small toys
☐ clock or stopwatch
Plan
Think about the things you have. How can you use them to build a house?

Create
Look at the picture you drew. Then use the things you have to build a house and a fence using only natural resources.

Test
Place two small toys inside your house. Do the toys fit inside? Does the house stay standing for five minutes?

How Did It Work?
Think about what happened when you tested the house. Did your house work? What can you do to make it better? Plan, create, and test until you are happy with your house.
**Plan:** Write about your design. Tell what things you will use. Then draw your design.

**Create**

**Test:** Write about or draw to show what happened when you did your tests.

**How Did It Work?** Write what you think.
Redesign: Write about what you will change. Draw your new design.

Change It or Make It Again

Test: Write about or draw to show what happened when you did your tests.

How Did It Work? Write what you think.