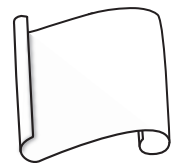


My Group

Names

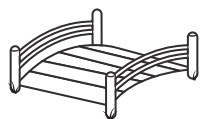
Our Task



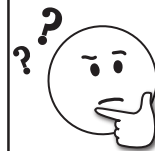
Our Plan



Tools We Used



Model We Made



How Did We Do?

STEM-tivity™ Class Kit - Building Materials Matter

This Really Good Stuff® product includes:

- 250 Bold Magic Nuudles™
- 50 Milkshake Straws
- 4 Spray Bottles
- 4 Diecut Sheets
- 4 Work Mats
- 12 Task Cards, 4 each of three different tasks
- Storage Box
- This Really Good Stuff® Instructional Guide

Congratulations on your purchase of this Really Good Stuff® STEM-tivity™ Class Kit - Building Materials Matter—a hands-on kit utilizing the inquiry method to heighten your students’ imaginations and bring engineering skills to life with engaging activities about the characteristics and properties of matter in real life situations.

Meeting the Standards

The Really Good Stuff® STEM-tivity™ Class Kit - Building Materials Matter aligns with the Next Generation Science Standards below. For alignment with other state standards, please refer to our website’s Standards Match.

2-PS1 Matter and its Interactions

Students who demonstrate understanding can:

- 2-PS1-1** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- 2-PS1-2** Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

K-2-ETS1 Engineering Design

Students who demonstrate understanding can:

- K-2-ETS1-1** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- K-2-ETS1-2** Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- K-2-ETS1-3** Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

Displaying and Preparing the STEM-tivity™ Class Kit – Building Materials Matter

Before displaying the STEM-tivity™ Class Kit - Building Materials Matter, make copies of this

Really Good Stuff® Instructional Guide, and file the pages for future use. Or, download another copy of it from our website at www.reallygoodstuff.com.

This Kit includes enough materials to divide your class into four working groups of up to four students each. The groups can work on the same Task Card at the same time, allowing them to compare and contrast their designs and models. Or, the groups can work on different Task Cards and then present their designs to the class. Divide the materials accordingly.

Each Task Card features a main activity on the front and extended activities on the back for each STEM component. Depending on your students’ level, you may need to lead the activities due to text complexity and task difficulty. In addition to the text on the back of each Task Card, the text on the front of the Task Card is color-coded to identify steps in the task as Science-based (blue), Math-based (red), or Engineering-based (green). Store all of the materials in the Storage Box once activities are completed.

Introducing the STEM-tivity™ Class Kit - Building Materials Matter

Gather students together and review the basics of classifying different kinds of materials by their observable attributes. Present the following scenario background for why students will be working with the STEM-tivity™ Class Kit - Building Materials Matter.

The Waterville town council wants to make improvements in their parks and in their road system. They want to make sure that Waterville’s new bridges and shelters are made from the right materials.

Explain to students that as they complete different tasks from the Kit, they will be working with different materials to decide what materials work best for the location and environment. Introduce new vocabulary to familiarize students with words they will encounter on the Task Cards:

- *attributes*: qualities belonging to a particular thing
- *environment*: the conditions and forces around living things
- *pitched roof*: a two-sided sloped roof
- *severe*: very bad, serious, or unpleasant
- *spritz*: to apply a light spray
- *supports*: objects that hold up other objects
- *wind resistance*: to protect from damage by the wind

Walking Bridge in the Park Task Card

Copy and distribute four copies of the *Building Materials Matter Reproducible* as well as the *Task Card* with the blue header, *Nuudles™*, *Straws*, a *Diecut Sheet*, *Work Mat*, and a moist sponge or small tray of water to each group.

- **Essential Question:** Read the header at the top of the *Task Card* to create a setting before asking the essential question of *What materials make the most sense to use when creating a walking bridge in the park?* Read the instructions on the *Task Card* aloud to students. Answer any questions students may have about their task.
- **Available Tools:** Introduce the groups to the *Nuudles™*, *Straws*, *Diecut Sheet*, and *Work Mat* explaining that they are to use these tools to complete the task. Have them fill in the *Tools We Used* section on their reproducibles. Demonstrate how to moisten the ends of the *Nuudles™* to get them to stick together. Just a little moisture and drying time will do it.
- **Make a Plan:** Tell each group to discuss a plan for constructing a walking bridge out of the best materials for the job. Encourage them to think about and discuss the properties and attributes of each material. Then ask groups to draw or write their plan on the *Building Materials Matter Reproducible*. Circulate and check the plans as students begin the task.
- **Conduct the Task:** Instruct each group to use the materials to create a bridge on the park side of the *Work Mat*.

- **Evaluate:** Direct each group to fill in the *Model We Made* section on the *Building Materials Matter Reproducible* with a drawing or photograph of their bridge model. Ask them to evaluate their task by writing or telling what worked and what didn't work in the *How Did We Do?* section. Have each group compare and contrast their model with other groups.
- **Share Ideas:** Have students present their finished task to the class and talk about what worked and what they might be able to do better.

Choose other Science, Technology, Engineering, and Math activities on the back of the *Task Card* to enhance your students' learning.

Rainy Day Park Shelter Task Card

Copy and distribute four copies of the *Building Materials Matter Reproducible* as well as the *Task Card* with the orange header, *Nuudles™*, "Wooden Planks", *Straws*, a *Diecut Sheet*, *Spray Bottle*, *Work Mat*, and a moist sponge or small tray of water to each group.

- **Essential Question:** Read the header at the top of the *Task Card* to create a setting before asking the essential question of *What materials make the most sense to use when creating a rainy day shelter in the park?* Read the instructions on the *Task Card* aloud to students. Answer any questions students may have about their task.
- **Available Tools:** Introduce the groups to the *Nuudles™*, "Wooden Planks", *Straws*, *Diecut Sheet*, *Spray Bottle*, and *Work Mat* explaining that they are to use these tools to complete the task. Have them fill in the *Tools We Used* section on their reproducibles. Demonstrate how to moisten the ends of the *Nuudles™* to get them to stick together. Just a little moisture and drying time will do it. Have each group choose a member to fill the *Spray Bottle* with water.
- **Make a Plan:** Tell each group to discuss a plan for constructing a rainy day shelter out of the best materials for the job. Encourage them to think about and discuss the properties and attributes

of each material in a rain environment. Then ask groups to draw or write their plan on the *Building Materials Matter Reproducible*. Circulate and check the plans as students begin the task.

- **Conduct the Task:** Instruct each group to use the materials to create a shelter on the concrete pad on the park side of the *Work Mat*.
- **Evaluate:** Direct each group to fill in the *Model We Made* section on the *Building Materials Matter Reproducible* with a drawing or photograph of their shelter model. Ask them to evaluate their task by writing or telling what worked and what didn't work in the *How Did We Do?* section. Have each group compare and contrast their model with other groups.
- **Share Ideas:** Have students present their finished task to the class and talk about what worked and what they might be able to do better.

Choose other Science, Technology, Engineering, and Math activities on the back of the *Task Card* to enhance your students' learning.

Waterville's Four-Lane Highway Task Card

Copy and distribute four copies of the *Building Materials Matter Reproducible* as well as the *Task Card* with the green header, *Nuudles™*, "Wooden Planks", *Straws*, a *Diecut Sheet*, *Spray Bottle*, *Work Mat*, and a moist sponge or small tray of water to each group. Provide a stopwatch for each group (or have a clock within viewing distance) as well as a means to take digital photographs.

- **Essential Question:** Read the header at the top of the *Task Card* to create a setting before asking the essential question of *What materials make the most sense to use when creating a bridge with supports in the river?* Read the instructions on the *Task Card* aloud to students. Answer any questions students may have about their task.
- **Available Tools:** Introduce the groups to the *Nuudles™*, "Wooden Planks", *Straws*, *Diecut Sheet*, *Spray Bottle*, and *Work Mat* explaining that they are to use these tools to complete the task.

Have them fill in the *Tools We Used* section on their reproducibles. Demonstrate how to moisten the ends of the *Nuudles™* to get them to stick together. Just a little moisture and drying time will do it. Have each group choose a member to fill the *Spray Bottle* with water.

- **Make a Plan:** Tell each group to discuss a plan for constructing a long bridge that requires supports in a river out of the best materials for the job. Encourage them to think about and discuss the properties and attributes of each material in a water environment. Then ask groups to draw or write their plan on the *Building Materials Matter Reproducible*. Circulate and check the plans as students begin the task.
- **Conduct the Task:** Instruct each group to use the materials to create a bridge over the river on the river side of the *Work Mat*.
- **Evaluate:** Direct each group to fill in the *Model We Made* section on the *Building Materials Matter Reproducible* with a drawing or photograph of their model. Ask them to evaluate their task by writing or telling what worked and what didn't work in the *How Did We Do?* section. Have each group compare and contrast their model with other groups.
- **Share Ideas:** Have students present their finished task to the class and talk about what worked and what they might be able to do better.

Choose other Science, Technology, Engineering, and Math activities on the back of the *Task Card* to enhance your students' learning.