# BRICK BRICK

## **TEACHER GUIDE**



Here's a suggested schedule for this kit! The activities should be completed in order, but you can choose when the lessons take place over time.

PLANNING

|   | SECTION (S)   | TIME<br>REQUIRED | DAY/<br>LESSON |  |
|---|---|------------------|----------------|--|
| ACTIVITY I: SOFT ROCK<br>Discover the strengths and weaknesses of limestone.<br>Time required: 45 min | <ul> <li>Bubble Trouble</li> <li>Learn About Lime-<br/>stone</li> </ul> | 45 minutes       | Day 1          |  |
| <b>ACTIVITY 2: ROCK OUT!</b><br>Study the small pieces that make up large structures in your world.   | Stone Strength Built  | 45 minutes       | Day 2          |  |
| Time required: 2 h  |   |                  |                |  |
| ACTIVITY 3: CONSTRUCT   |   |                  |                |  |
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## SOFT ROCK

In this activity, your student will use an interesting property of limestone rock to explore the idea that every material has both strengths and weaknesses.

## BUBBLE TROUBLE

■ Your student will place limestone in water and then in vinegar. The rock should do nothing in water, but it should bubble in the vinegar.

You can help the student use the pipet to squirt the liquids on the rock and observe multiple surfaces of them interacting with the rock.

The vinegar usually makes the rock bubble within a few seconds.

■ Your student will predict the result for each liquid and record their observations in a results table.

As they make their predictions, encourage them to be descriptive and provide reasons for their predictions.

You can have them offer their predictions verbally, if you prefer.

As they make their observations, allow them to either write what happened or draw a picture of what they observed.

### THINK ABOUT IT!

## Question 1: Did the rock do the same things in water and vinegar? What was the same? What was different?

**Answer:** The rock didn't do anything in water. It bubbled in vinegar. The rock got wet and looked darker in both.

How to Help: Repeat the experiment, pointing out the similarities and differences, if needed.

#### Question 2: Why do you think the rock did what it did in vinegar?

**Answer:** Answers will vary but the student may mention a chemical reaction between the rock and vinegar.

**How to Help:** *There's no need for them to answer this correctly right now. Instead, it will give you an idea about their prior knowledge about chemical reactions and properties.* 

## Question 3: What do you think would happen if you left the limestone in vinegar for several days? Why?

**Answer:** The rock and vinegar would make even more bubbles and the limestone would get smaller or even go away.

**How to Help:** The vinegar will slowly "eat away at" the limestone. You can sometimes see small pieces coming off the rock when in the vinegar, showing that it's being broken down.

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## LEARN ABOUT LIMESTONE

#### CONTENT

• This section includes several concepts related to the definitions and properties of rocks, as well as a brief introduction to the importance of limestone as a building material.

• The following vocabulary terms are introduced: rock, mineral, crystal, particle, chemical reaction, and acid.

• Have your student take their time with each new paragraph and connect the photographs or diagrams to the new vocabulary.

**CONSTRUCTION ZONE** 

Now that your student knows more about different building materials and the structures made from them, they will make several structures with the building materials in the kit.

#### **LEARNING GOALS:**

- I can use evidence to show that an object made of small pieces can be taken apart and made into a new object.
  - I can test materials to find out which ones have properties that are best for a certain purpose.

### CAN YOU BUILD IT?

#### PREPARATION AND SUPERVISION

#### **SAFETY:** WARNING! Inhalation Hazard – Do not inhale or eat any of the kit contents.



Your student will use the kit items to build four different structures (tower, table, walkway, and mound).

For each structure, the student is asked to make a plan for which materials they want to use, predict what it will look like, and then try building it according to that plan.

• Encourage them to be detailed in their plans and predictions so that they can analyze it after building using the other three suggestions for each structure.

After they try their plan, they should make the structure using the three suggestions in each notes table.

• The structures will have varying levels of success; some will work, some won't. None will be "perfect."

• These varying success levels will help the student begin to understand the relationship between structure and function. In other words, different combinations of materials will result in different outcomes. Materials have both advantages and limitations.

• You might talk to the student about the ways structures are classified and how those classifications are subjective.

For example, is a 1-meter-high stack of blocks a tower? A child will likely say it is, but an architect might not.

#### MULTIPLE AGES AND ABILITIES:

If your student has tactile sensitivity, offer them a chance to do the activities themselves but step in as needed. This activity has powdery and grainy materials, while the following activities have squishy and/or stretchy materials. If your student opts out of touching the materials, ask them to direct you in what to do and then encourage them to examine the structures and materials with the magnifying glass.

Try not to step in unless absolutely needed. Remind your student that none of the structures will be perfect and that the purpose of the challenges is to see what works better and what doesn't work as well.

They will need to use flour and sand in Activity 4, so make sure they don't use more than half of it in this activity. It may be beneficial for you to help them measure out how much they might need before beginning the activity.

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| Kit           | SU-BRICKB  |  |
|---------------|------------|--|
| Instructions  | IN-BRICKBT |  |
| Revision Date | 3/2022     |  |