

# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

Essential Question for this lesson:

## **What can we learn about the granite used in *The Sculpture Project: Passage of Wind & Water?***

*The Sculpture Project: Passage of Wind and Water* at Main Street Square is being carved from 21 pieces of extremely interesting granite. The granite is arranged in two series: the reddish-brown granite pieces along Main Street represent the Badlands and form the Badlands Tapestry Garden. The grey stones along Sixth Street reflect the Black Hills and form the Black Hills Tapestry Garden.

All of the granite for this enormous project came from quarries within a 500-mile radius of Rapid City! The granite for the Badlands Garden was quarried in Milbank, South Dakota. It is reddish-brown carnelian granite, and it formed 2 billion years ago. The Black Hills Garden features Rockville Beige granite, quarried in Rockville, Minnesota. This granite formed 1.7 billion years ago. These stones are ancient.

Sculptor Masayuki Nagase, who began working on the ancient granite in the summer of 2013, describes the stone as a living material that contains the history of the planet. He says that as he carves, he imposes his design for *Passage of Wind and Water* on the stone and also brings out “the natural breath of the material.”

Appropriately, part of Nagase’s design for the Badlands Garden stones is the exploration of different periods of geologic time. The design for the first five stones he is carving abstractly depicts the landscape, flora, and fauna of the Badlands leading up to and including the appearance of human beings.

The granite can remind us that the landforms and rocks we enjoy today were actually formed long before people existed. “These stones reflect the continuously changing nature of life,” Nagase says. “One can feel the presence of this deep geological past of the earth in the Badlands through the land and the fossils that are

# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

found there.” When people visit the project and touch the granite, they are really touching the ancient past!

Granite is an igneous rock. Igneous rocks form by the crystallization of once molten material. This molten rock is called magma and then lava once it reaches the surface. It is essentially a silicate melt and may contain, as well as silicon and oxygen, other elements, particularly aluminum, iron, calcium, sodium, potassium, and magnesium. These combine, as the magma or lava crystallizes, to form silicate minerals, which in combination make up igneous rocks.<sup>1</sup>

In the case of the amazing granite stones at Main Street Square, this process occurred between 1.7 and 2 billion years ago!

## **Understanding the idea of a billion**

**Most people have trouble understanding how large a billion of something really is.  
A billion is a thousand millions.**

**1 million seconds = 11 days, 13.5 hours  
1 billion seconds = 31.7 years**

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<sup>1</sup> Pellant, Chris. Eyewitness Handbooks: Rocks and Minerals. New York: Dorling Kindersley, Inc., 1992. 180.

# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

## Thinking About the Project

Please write your thoughts about the questions below. We are looking for your **original thinking**: what actually comes into your mind as you carefully read the questions. Your answers may be clear bullet points or clear, complete sentences.

1. What do you think about the granite being quarried from within a 500-mile radius of Rapid City? What resources do you think this decision conserved?
  
2. When you look at this photograph of a carved model of stone 8 from the Badlands Garden, what do you notice about the design that reminds you of the geological past?



# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

3. Why do you think visitors will be interested in the designs carved into the stones of the Badlands Garden?
  
4. What questions can you generate about the process of granite formation? What resources might someone use to find answers to the questions you think of?
  
5. Granite is igneous rock, which was once molten material. What are the differences you can think of between molten rock and solid rock? Name as many differences as you can.
  
6. Why do you think it is difficult for people to understand the difference between a million and a billion?
  
7. What model or diagram could you design to help clearly explain the difference between a million and a billion?

# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

## Notes for Teachers

The lessons connected with *The Sculpture Project: Passage of Wind and Water* are designed to be used with students in many grade levels. You may need to provide scaffolding in order to help your students access the text. To help with this, we have included this vocabulary bank. This bank can be easily used with the existing word study procedures you use with students.

- granite
- enormous
- quarried
- radius
- carnelian granite
- ancient
- imposes
- geologic time
- abstractly
- depicts
- flora
- fauna
- continuously
- geological past

- fossils
- igneous
- crystallization
- molten
- magma
- lava
- silicate
- elements
- billion
- million
- conserved
- generate
- diagram
- originate

### CCSS Language Arts Anchor Standards Addressed:

R1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite evidence when writing or speaking to support conclusions drawn from the text.

R10: Read and comprehend complex informational texts independently and proficiently.

W9: Draw evidence from informational texts to support analysis, reflection, & research.

SL1: Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly & persuasively.

L4: Determine or clarify the meaning of unknown & multiple-meaning words & phrases by using context clues, analyzing meaningful word parts, & consulting reference materials as appropriate.

# THE SCULPTURE PROJECT

PASSAGE OF WIND & WATER

L6: Acquire & use accurately a range of general academic & domain-specific words & phrases sufficient for reading, writing, speaking, & listening at the college & career-readiness level; demonstrate independence in gathering vocabulary knowledge.

## **More about the work and the standards**

*This text and the accompanying critical thinking questions are considered informational texts. They are real-world texts about a current local project. The questions are designed to elicit high-level thinking and need no answer key.*

*If students are showing their original thinking, engaging with the topic and the ways in which they perceive the project, then they are doing good work. Teachers will have success when they encourage students to show and explain their thinking. Great student discussions can follow!*

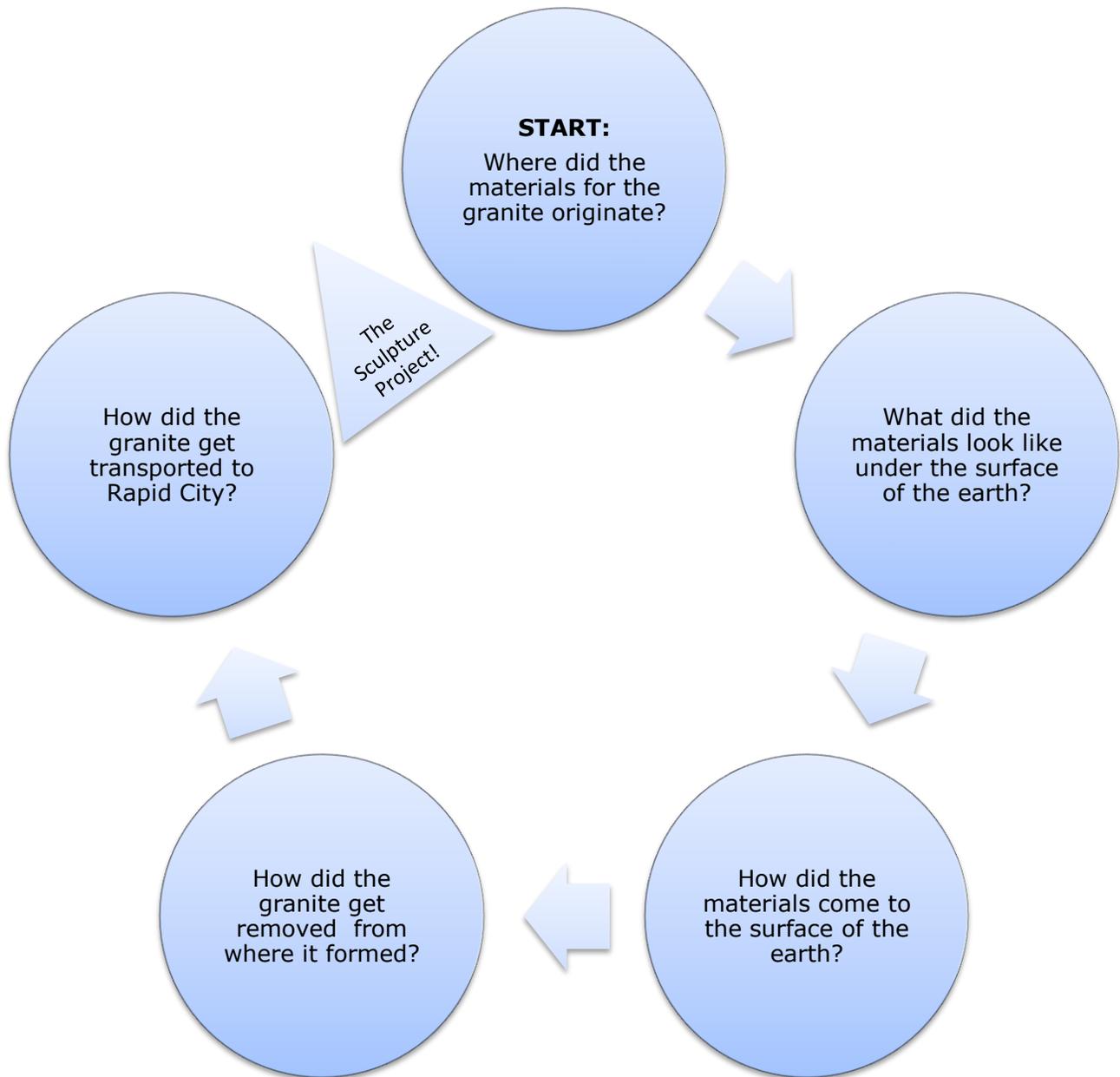
*The next page contains a graphic organizer that can help thinkers prepare for their discussions. This process of preparing for & engaging in peer discussions addresses the CCSS Speaking and Listening Standard SL.1!*

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PASSAGE OF WIND & WATER

## Ancient granite: A discussion



**Name:**

**Date of discussion:**