Rock Cycle Unit	
Grade Level	5th
Standards:	**5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks.** **5.S.1.1.1 Compare and contrast different systems.** **5.S.1.2.3 Use models to explain or demonstrate a concept.** **5.S.1.3.1 Analyze changes that occur in and among systems.** *The student will investigate and understand how the Earth's surface is constantly changing.*
Timeline:	Approximately 2 weeks
	Day 1 • Begin the Rock cycle: read pages. 164-165 from *Sciencesaurus* • http://www.youtube.com/watch?v=uAAeFB7Tv5A • Discuss: how rocks are formed? What kinds of rocks are there? How many processes? Day 2 • Different types of rocks and how they are formed. • Sedimentary rock experiment: Chips and jars: smash different types of chips and layer in jar and then smash down, add warm chocolate • make comparisons in science notebook --> rock cycle process to how the food reacted • http://www.youtube.com/watch?v=mxbmvG5gpAs Day 3 • Metamorphic Rock experiment: rice crispy treats and chocolate chips • make comparisons in science notebook --> rock cycle process to how the food reacted Day 4 • Igneous rocks: food experiment to show how they are formed • Melting process that turns rocks back into magma Day 5 • How do igneous, metamorphic, and sedimentary rocks interact in the rock cycle? • Making connections, analyze the changes of rock cycle: why is it considered a cycle? • Science books for reference diagram pg. 165 *Sciencesaurus* • Rock cycle worksheet Day 6 • Student create own rock cycle diagrams: label type of rocks and processes Day 7 • Continue rock cycle diagrams • Gallery walk when finished: follow up with appreciations for other's work Day 8 • Wrap-up rock cycle with review • Rock cycle quiz

Sedimentary Rocks Creating Sedimentary Rocks with Food	
Grade level	5th
Standards	**5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks.** **5.S.1.1.1 Compare and contrast different systems.** **5.S.1.2.3 Use models to explain or demonstrate a concept.** **5.S.1.3.1 Analyze changes that occur in and among systems.** *The student will investigate and understand how the Earth's surface is constantly changing.*
Materials	• Two types of chips • Napkins • Sandwich bags • Clear cup • Warmer • Warm chocolate • *Sciencesaurus* • Science notebook for observations and diagrams
Discussion questions	1. What physical changes occurred when we crushed the chips? 2. What part of the rock cycle did we simulate when we crushed the chips? 3. What do you notice about the appearance of the two crushed chips together in the cup? 4. What happened to the appearance of the mixture when we added the warm chocolate? 5. What part of the rock cycle did we simulate? 6. What did this model not show us about how sedimentary rocks form? 7. What did this activity teach you about how sedimentary rocks form?
Steps:	1. Pass out one type of chip on napkins 2. Make observations in science notebook 3. Put in plastic bag and crush→ observations, connections to rock cycle, and diagram in science notebook 4. Pour into cup 5. Repeat process with second type of chip 6. Add warm chocolate to mixture and push down on chips and chocolate 7. Make observations, connections to rock cycle, and diagram in science notebook 8. Follow up with last two discussion questions

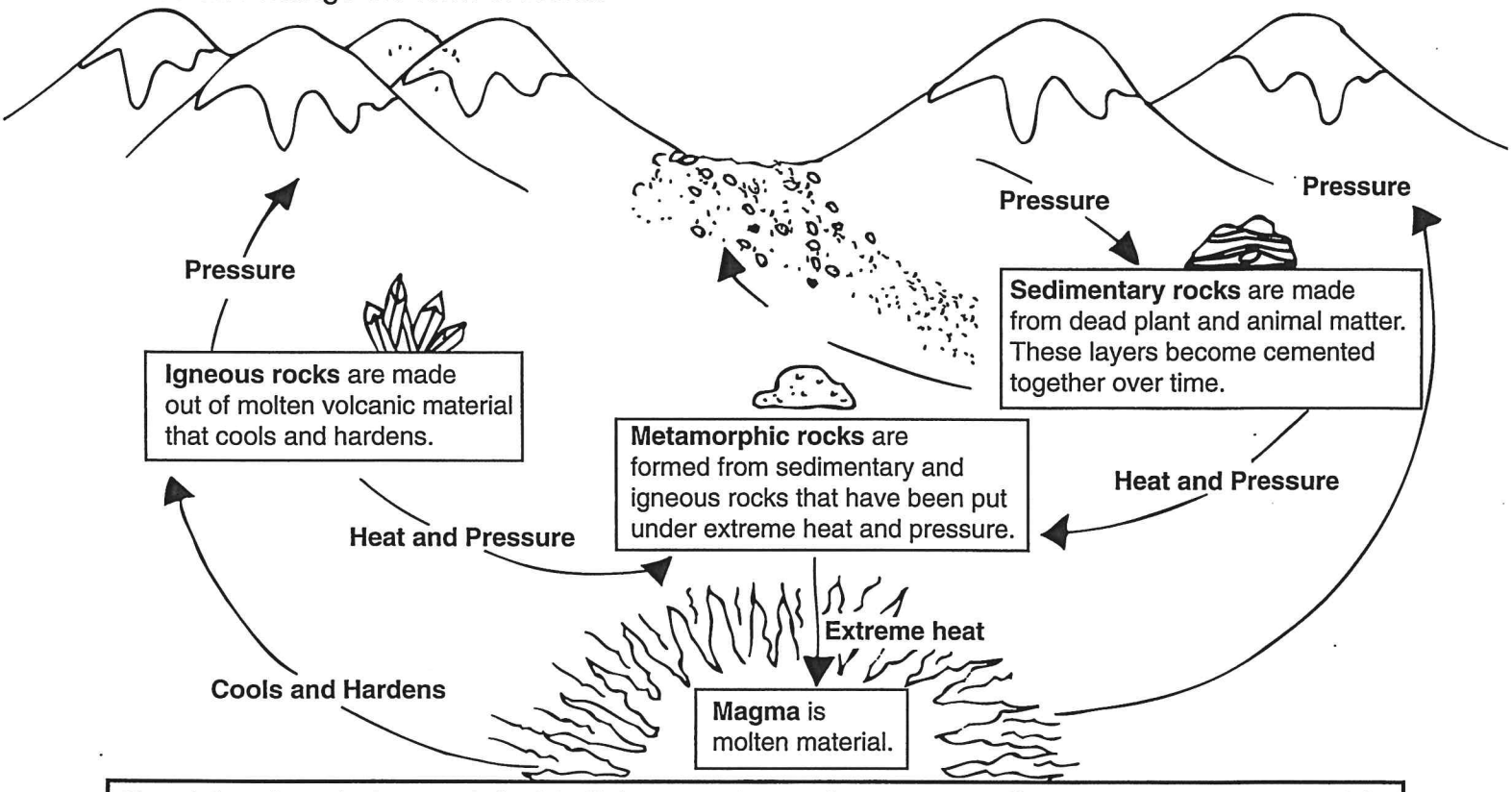
Metamorphic Munchies: Creating Metamorphic Rocks with Food	
Grade level	5th
Standards	**5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks.** **5.S.1.1.1 Compare and contrast different systems.** **5.S.1.2.3 Use models to explain or demonstrate a concept.** **5.S.1.3.1 Analyze changes that occur in and among systems.** *The student will investigate and understand how the Earth's surface is constantly changing.*
Materials	1. Rice crispy treats (one per student) 2. Chocolate 3. Aluminum foil 4. Iron 5. *Sciencesaurus* text 6. Science notebook for observations and diagrams
Discussion questions	1. What happened to the height and width of the rice crispy treat when you pushed down on it with your hands or foot? 2. What happened to the shape of the rice crispy treat when you pushed down on it with your hands of foot? 3. What happened to the physical appearance of the rice crispy treat when you pushed down on it with your hands? With your foot? After the iron was placed on it? 4. What metamorphic process did the iron simulate? 5. What did this activity show us about how metamorphic rocks form? 6. What did this model not show us about how metamorphic rocks form? 7. What did this activity teach you about how metamorphic rocks form?

Igneous Rocks Creating Igneous Rocks with Food	
Grade level	5th
Standards	**5.S.4.2.1 Explain the rock cycle and identify the three classifications of rocks.** **5.S.1.1.1 Compare and contrast different systems.** **5.S.1.2.3 Use models to explain or demonstrate a concept.** **5.S.1.3.1 Analyze changes that occur in and among systems.** *The student will investigate and understand how the Earth's surface is constantly changing.*
Materials	• Milk chocolate chips • White chocolate chips • Wax paper • Cookie sheet • Stirring spoon • Safe heating device • Microwave-safe bowl • *Sciencesaurus* • Science notebook for observations and diagrams
Discussion questions	6. What physical changes occurred when we applied heat to the chocolate chips? 7. What part of the rock cycle did we simulate when we applied the heat? 8. What do you notice about the appearance of the chocolate as heat is applied? 9. What happened to the appearance when we stirred the mixture? 10. What part of the rock cycle did we simulate? 11. What did this model not show us about how igneous rocks form? 12. What did this activity teach you about how igneous rocks form?
Steps:	1. Review how igneous rocks are formed 2. Show both types of chocolate chips and make observations about their appearance. 3. Put both kinds of chocolate chips in the microwave –safe bowl and heat. 4. Take out once melted and have students make observations 5. Stir the mixture and make observations again. 6. Cover the cookies sheet with wax paper. Explain the process that magma goes through to become lava. 7. Once it cools and becomes "lava" make final observations.

Name _____ Understanding terminology

The Rock Cycle

Look at the diagram of the rock cycle. It shows how forces deep within the earth and on the surface can change the form of rocks.



Read the clues below and decide if these rocks are **igneous, sedimentary,** or **metamorphic.** Write the correct rock type on the line.

1. Wind breaks small bits from large rocks. Rain takes the particles to a creek. They drop to the bottom and harden over time into limestone. _____
2. A volcano sends lava out of its cone. The lava cools as it falls and makes basalt. _____
3. A slow river puts soft, wet clay on a dead fish. The piled clay lies in place for years. The fish body is replaced with stone. _____
4. Melted rock moves in the earth. It cools as it nears the earth's surface. _____
5. The weight and pressure of a mountain over time turn shale into slate. _____
6. Space in packed sand on the sea floor fills with minerals in the water. These minerals over time become cemented and turn into sandstone. _____
7. Magma presses against limestone. Over time it forms into marble. _____
8. The continental plates move and make folds in the rock. This pressure can cause granite to form into gneiss. _____
9. The ocean waves blast coral into bits which settle on old shells. The coral and shell particles build up. Over the years they harden together to form coquina. _____
10. Lava flows in huge sheets on the earth. It cools quickly into obsidian. _____

Bonus Box: Make up two more rock clues that your teacher could add to this page.

Rock Cycle Quiz

Name:_____ **#:**_____

1. What are the three main types of rocks? (3pts.)

_____

_____

_____

2. What rock is formed when magma or lava cools and hardens? (1 pt.)

_____

3. Sediments that have been squeezed and cemented together form what type of rock? (1 pt.)

_____

4. What rock is formed through squeezing and heating? (1 pt.)

_____

5. What process transforms metamorphic, igneous, and sedimentary rocks into magma? (1 pt.)

_____

6. What process transforms metamorphic, igneous, and sedimentary rocks into sediments? (1 pt.)

_____

Matching: Put the letter of the correct description on the line next to each of the processes below. The descriptions are in the box to the right. You will use each description once.

(1 pt. each)

8. Weathering and erosion _____

9. Melting _____

10. Cooling and hardening _____

11. Squeezing and cementing _____

12. Squeezing and heating _____

Descriptions

A. These two processes change sedimentary rock and igneous rock into metamorphic rock.

B. This process happens deep below Earth's surface. All three kinds of rocks transform into magma through this process.

C. These two processes break existing rock into tiny particles, forming sediment. This also moves the sediment to other places, where it is deposited.

D. This process presses together sediment to form sedimentary rock.

E. This process happens on or below the surface. This process takes magma and transforms it into igneous rock.

13. In your own words, describe the rock cycle. Why do we call it a cycle? (4 pts.)

_____

_____

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_____

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