

# Asking Mr. Aims

**K**ate was studying careers in school. Each of the students in Kate's class was asked to talk to one adult about his or her job. Kate talked to Mr. Aims.

Mr. Aims was Kate's neighbor. He worked at a rock quarry. Kate had been to the quarry so she knew it was a big pit of rock and stone. She also knew large trucks and machines parked at the quarry, but she didn't know what Mr. Aims did at the pit.

**Kate:** Good morning, Mr. Aims. Thank you for talking to me about your job. I know you work at the rock quarry on the edge of town. What do you do there?

**Mr. Aims:** Well, Kate, the men and women at the rock quarry break large rocks into smaller blocks and stones. The blocks and stones are used to make building materials. My job is to blast big slabs of limestone with dynamite. My friend Tom scoops the stone up with a big backhoe. My friend Jan drives a big truck full of the limestone pieces to a factory where the stones are turned into glass, steel, and cement.

**Kate:** You mean shiny silver steel is really made of rock?

**Mr. Aims:** Steel is made when iron ore (rock that contains iron), carbon, and limestone are heated in a very hot furnace. The chalk your teacher uses in the classroom is also

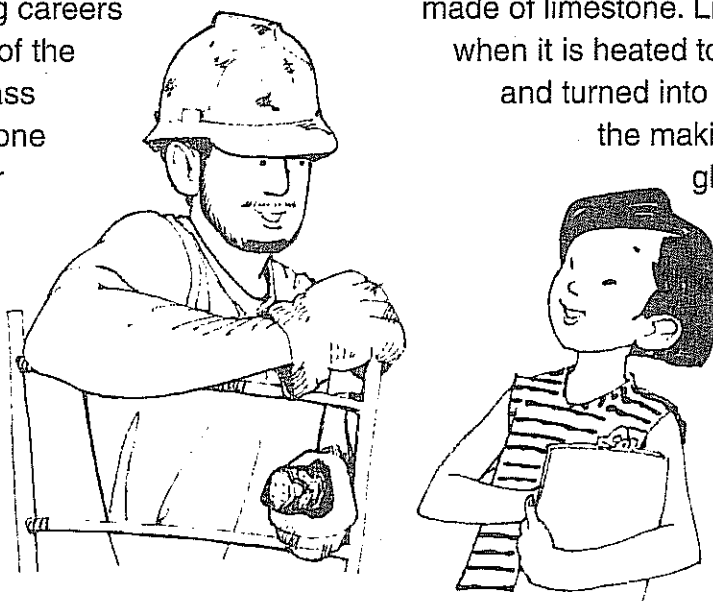
made of limestone. Limestone is most useful when it is heated to a high temperature and turned into lime. Lime is used in the making of cement, paper, glass, water softeners, antacids, and soil additives. Lime is even used to refine sugar and tan leather.

**Kate:** Are other rocks as useful as limestone?

**Mr. Aims:** Artists carve marble into sculptures. Slate makes shingles for rooftops. Jewelry is made from quartz. Coal is used as fuel. Granite is used to construct buildings.

**Kate:** There are so many different kinds of rocks. What makes one rock different from another?

**Mr. Aims:** Different kinds of rocks are formed in different ways. Some rocks come from inside the Earth. When a volcano erupts, hot liquid rock called magma bursts out of the Earth as lava. When the lava cools, it forms hard rocks. Lava that cools quickly becomes a shiny black rock called obsidian. Lava that cools before gases inside it can escape forms pumice. Pumice is so light and full of holes that it floats in water. Sometimes magma hardens underground instead of shooting out of a mountain as lava. Granite is a rock that is formed underground when magma cools slowly. Rocks that form from magma are called igneous rocks. Igneous means "made from fire."



**Kate:** Do all rocks come from inside the Earth?

**Mr. Aims:** No, some rocks are formed on Earth's surface. Sedimentary rocks are made from mud and tiny pieces of sand and shells that get pressed together on the ocean floor. The limestone that I work with at the quarry is made of animal shells.

**Kate:** I know that shells pile up on the ocean floor when sea animals die, but where does sand come from?

**Mr. Aims:** When wind, ice, and rain wear down big rocks all around the world, pieces of the rocks crumble and fall into streams. Slowly, the rock pieces make their way to oceans. As they tumble along, the rocks break into even smaller pieces. The edges of the small pieces of rock are smoothed by water and wear. Slowly, the weathered, crumbled pieces of rock break into bits of sand. Layers of sand and mud build up on the ocean floor as more and more rocks bump their way down streams to the ocean. Lower layers of mud and sand on the ocean floor get pushed together so tightly that they form hard rocks.

**Kate:** So sedimentary rocks are layered rocks?

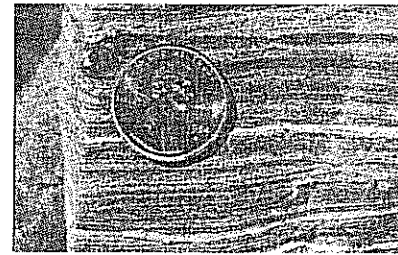
**Mr. Aims:** Yes, sedimentary rocks are layered rocks of shell, mud, and sand formed on the ocean floor. Igneous rocks are made from magma from below Earth's surface. And there is one other kind of rock—metamorphic rock. Metamorphic rocks are made from the two other kinds of rocks. Heat and pressure from inside the Earth change one kind of rock into another kind of rock. Limestone becomes marble when it is heated and pressed. Shale turns into slate, and sandstone turns into quartzite.

**Kate:** You know a lot about rock, Mr. Aims. Thank you for talking to me about your job and about all the uses of the different kinds of rocks.

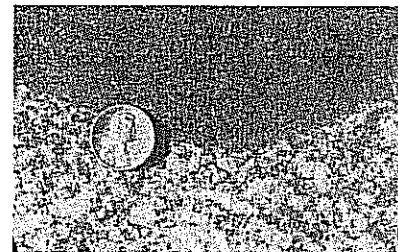
## Rocks Times Three

*There are three types of rocks:*

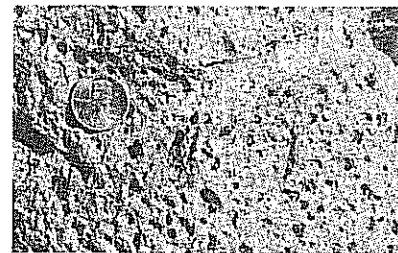
*Sedimentary rocks are formed when particles of matter are laid down in many layers and pressed together.*



*Igneous rocks are formed when hot liquid rock from deep inside the Earth comes to the surface, cools, and hardens.*



*Metamorphic rocks are formed when heat and pressure inside the Earth change one kind of rock into another kind of rock.*



Name \_\_\_\_\_



## Questions about *Asking Mr. Aims*

Fill in the bubble that best answers each question.

1. Limestone is an example of which kind of rock?

- metamorphic rock
- igneous rock
- sedimentary rock
- molten rock

2. Which statement about sedimentary rock is **not** true?

- Sedimentary rock means "rock made from fire."
- Sedimentary rock is layered.
- Sedimentary rock is formed on the ocean floor.
- Sedimentary rock is made from packed sand, mud, and/or shells.

3. Which statement about metamorphic rock is true?

- Sandstone is a metamorphic rock.
- Metamorphic rock is cooled lava.
- Metamorphic rock is made from the two other kinds of rocks.
- Metamorphic rocks float because they are full of trapped gases and holes.

4. Which force does not break down rocks in nature?

- wind
- ice
- water
- sunlight

5. Which is **not** a use of lime?

- It is used in the process of refining sugar.
- It is used to make lime-flavored drinks.
- It is present in cement.
- It is an ingredient in glass.

6. What does the word *igneous* mean?

- made from pressure
- made from other rocks
- made from sand
- made from fire