

Extension to Dust Hunt - *Dusty and Ashley's Big Adventure*

Science background

Saturn's rings: tiny dust grains and snowflakes of water ice, to house size icy chunks orbit Saturn. Each object has its own orbit, and together they compose Saturn's rings. The temperature of these objects stays well below the freezing point of water. Some of Saturn's moons interact with the ring system. Prometheus and Pandora are called "shepherd moons" because they tend to keep tiny dust and icy particles inside a braided, narrow ring that astronomers call the "F ring". Recent observations indicate that Prometheus sometimes crosses the F ring and disturbs the particles, possibly pulling some away from Saturn. For our story-line, imaginary dust particles named Dusty and Ashley begin their adventure from this ring.

The Story Sequence Activity

Preparation: Make photocopies of the "Dusty and Ashley's Big Adventure" page.

Story time: After the **Dust Hunt** activity, ask students to sit together and listen while you read the story about Dusty and Ashley. As you read the story, prompt students with simple questions to check their understanding: *Which planets are rocky? Why are Dusty and Ashley heading toward the Sun?* After reading the story, assemble students back into their groups, and pass out the pictures of Dusty and Ashley on their adventure. Ask students to cut out the pictures and arrange them as they happened from first to last. Students then paste the pictures down in order on the *Dusty and Ashley's Big Adventure: Picture Story* squares.

Connections: Dust on Earth is related to dust in space. The Earth, planets, and the Sun formed from a huge cloud of gas and dust billions of years ago. Use the story about Dusty and Ashley and the dust students found in their classroom to explain that there is dust in our solar system and in space. Space dust in some ways resembles classroom dust. However, space dust can also be tiny snowflakes (ice crystals), or specks of sand (silicates). So, Dusty and Ashley may be inside one of the samples that students collected!

Story

1. Dusty and Ashley live in Saturn's rings. They enjoy orbiting Saturn with the other dust grains, ice chunks, and moons. They live in one of the most beautiful planets in our solar system.
2. One day, Prometheus, one of Saturn's moons, tells Dusty and Ashley to visit their relatives on the rocky planets in the solar system. Away they go, heading toward the Sun.
3. After traveling for a long time, Ashley points to a small blue planet and says "Dusty, look! Liquid water! Let's go for a swim!"
4. Down, down, down toward Earth Dusty and Ashley fell. They felt very hot as they plunged through Earth's atmosphere. "Whew, I'm hot!" exclaimed Dusty. Ashley replied, "We will cool off soon. Look! Here comes the water!" SPLASH!
5. Dusty and Ashley swam in the ocean, and then washed up on shore. They met Sandy and other sand grains on the beach. They talked about Earth and the other rocky planets: Mars, Venus, and Mercury.
6. Soon, Dusty, Ashley, Sandy, and all the others on the beach realized that they were all in the same family! Dusty and Ashley learned from Sandy that some of their relatives live on Mars, Venus, and Mercury. Others are still drifting around the Sun in space.