



## Midas Miners Activity

### Abstract:

This activity begins by familiarizing young students with legends and fables. The story of King Midas is highly applicable to the issues we face today in mining. Students will begin to understand the value of resources we have in Florida, identify phosphate, explain reclamation, and distinguish between native and non-native plants. Students will be able to understand and appreciate the environment as well as understand why it is important to reclaim land in Florida. The activity combines language arts and science. Comprehension is based on listening skills and the ability to interpret the story based on the main idea and supporting detail. New vocabulary is introduced and context clues are utilized in defining new terminology. Endangered species, native, and non-native species are also introduced. This activity can also be an introduction to metaphors with the comparison of a fable to real life.

### Standards:

LA.K.5.2.2	LA.K.1.7.3	LA.1.5.2.1	LA.1.5.2.6	SC.D.1.2.1	SC.D.1.3.4
SC.G.1.2.2	LA.2.5.2.2	LA.2.5.2.1	SC.B.2.2.2	SC.G.2.1.2	SC.G.2.2.3
LA.3.5.2.1	LA.3.1.7.2	LA.4.2.1.7	LA.4.5.2.1	LA.5.1.7.2	LA.5.1.6.3

### Objectives:

- Students will be able to identify the main idea
- Students will be able to identify the author’s purpose
- Students will be able to listen to information presented orally and show an understanding of key points as well as listen politely to oral presentations.
- Students will be able to identify phosphate and know the meaning of reclamation
- Students will be able to distinguish between native and non-native species

### Vocabulary:

phosphate	habitat
reclamation	law
native species	endangered species
mining	fertilizer
non-native species (aka exotic or invasive)	

### Materials:

A hardhat small enough to fit a child  
A “gold crown” (a paper circlet that fits over the hardhat)  
A “green crown” (a paper circlet that fits over the hardhat)  
Colored signs in threaded sheet protectors, for children to wear (the signs identify and depict native and exotic/invasive plants in Florida)  
Small toy shovel, plastic

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Samples of phosphate rock in a see-through jar

**Activity:**

Ask the students if they can tell you what a legend or a fable is?

*It's a story about something that may not have really happened. We tell legends to help us understand something important about life, about people. It's a short story that teaches us a moral lesson.*

**Script -**

Have any of you heard the legend of King Midas? According to this legend, Midas was a king who lived long ago. He was famous for wanting riches, for wanting more, more, and more. He was granted a wish to have magic powers so that everything he touched would turn to gold. (Gold shoes, gold cup, gold plates, gold everything.) For a while Midas was happy. But then he hugged his daughter, Marigold, and she turned to gold, too, like a statue. Midas was horrified. He saw that we want riches to help make our lives better, but also that life itself is more important than riches. In the ending of the legend we prefer, Midas feels sorry, changes his ideas about what is really important, and Marigold, his daughter, comes to life again.

Today, we are going to pretend that one of you is King Midas or Queen Midas. [At this point, the presenter may select one student from volunteers or may ask the teacher to pick a student.] Come on up to the front and stand by me. Here are your hardhat, your crown, and your shovel.

Midas owns a phosphate mine. Why does he/she wear a hardhat at the mine? [The presenter waits for kids to volunteer answers.]

*That's right, to protect against getting hit on the head, from moving rock or tools or when falling.*

Midas mines phosphate rock, this gray stuff, to make money. [The presenter passes around a jar of phosphate rock for students to look at.] Midas's company, or other companies Midas sells the phosphate to, makes the phosphate into things we use to make life easier, especially fertilizer that makes plants grow better and faster so we can feed more people more cheaply.

When digging phosphate out of the earth, Midas wears this gold crown. He/she is in business to make money. Lots of people work at the mines and the fertilizer plants and at companies that make supplies for them. Some people work to run the trucks, trains, and ships that take the phosphate and the fertilizer all over the country and the world.

The rest of you are Florida native plants. [The presenter passes out role signs.] Place the yarn over your head and wear these signs with the green border showing. You are a prickly pear cactus...you are a saw palmetto...you are a passionflower...you are a slash pine...you are a wax myrtle. Act out how a plant grows. Pretend you are a small seed in the ground. Burst out of your seed. Put down roots. Stretch up into the sunlight.

When he/she mines, King Midas/Queen Midas is going to use heavy machinery to dig holes to bring phosphate out of the ground. There will be more holes dug to dump the phosphate in, so it can be hosed down with water, and pipes run to send the wet goo (called slurry) [show picture of

slurry] to the mine plant, so that phosphate pieces can be separated from the sand and clay the phosphate was dug up with.

What are all these pieces of equipment and holes and pipes going to do to the native plants that were on the land? [The presenter waits for kids to volunteer answers.]

*Most of the plants will be dug up and removed or die.*

Now it is time to start mining. Midas will come around and tap all of you on the shoulder, gently. When you are tapped, take off your sign. Now that the land has been mined, there are no plants left on the land.

After mining is over, **reclamation** begins. This is a process of making the land as much like it was before mining as possible. Midas promised the state and the county he would reclaim the land before he received permission to mine. Midas, take the gold crown off your hard hat; put on the green crown. Midas fills in the holes, makes the land level again, and plants native plants. Midas is going to come around with the shovel again and tap some of you on the shoulder. [The presenter can help Midas count out 2/3 of the group, to tap.] When you are tapped, put on your sign with the green (native plant) border showing.

Unfortunately, non-native plants will grow on their own. Everyone that Midas does *not* tap, put your signs on with the gold border (non-native side) showing. You are non-native plants! You are a Brazilian pepper...you are a melaleuca...you are cogongrass...you are Chinese tallow...you are an air yam.

A non-native plant is a plant that comes from somewhere else, another part of the United States, or another country. It does not belong. In Florida habitats, non-native plants grow so fast and claim so much space they prevent native plants from growing. Non-native plants use lots of moisture in the soil. They hog the sunlight. Some of these non-native plants aren't popular with animals that live here, so the animals go somewhere else to find native plants that offer a variety of food and shelter.

Midas has filled in the mine holes, made the land smooth, and put in native plants, but that isn't enough. Florida law says that Midas must do more. And Midas wants to do more; after all, Midas lives here with his/her family, and they want to see Florida look like Florida, with a variety of native plants and animals. The miners want to sell the land, which will become house lots or parks or pastureland. To get rid of unwanted non-native plants, Midas may use chemicals called herbicides. Midas may set controlled fires to burn out unwanted plants. Midas may also plant trees that will grow tall and spread out; the leaf canopy of these trees will keep sunlight away from some non-native plants and they will die. Then Midas plants more grasses, shrubs, and trees that *are* native to this habitat, plants that *won't* grow out of control.

Midas, go around and tap on the shoulder some of the students wearing non-native signs (yellow border showing). We'll help you count. [The presenter eyeballs the group and counts up to 2/5 of this group.] Those of you who are tapped (and only you), reverse your signs again, with the green border showing, to indicate you now are native shrubs or trees or grasses, planted to

replace the unwanted plants. Now the land has more slash pine trees ...prickly pear cactus...passion flowers...wax myrtles... saw palmettos.

Sometimes, to protect endangered species that live on land that will be mined, Midas even traps animals like gopher tortoises, keeps them safe somewhere else, and brings them back and releases them on land being reclaimed. By planting the right kind of trees, plants, and shrubs, Midas can encourage other animals, like scrub jays, to return to the land.

Notice that some of you—three of you for every five-- were not tapped and still wear your signs with the yellow border showing. There are still non-native plants on the land! They are hard to get rid of. It is a constant struggle to re-establish native plants against these greedy newcomers that have few known predators. Mining has changed everything, so it takes lots of effort to have the benefits of phosphate *and* return the land to almost the way it was before mining. You helped us tell this story. Unlike the old Midas legend, this story of reclamation is a true story. Phosphate mining and reclamation are going on all around us.

[The presenter collects the signs from the group.]

It is important to mine and reclaim, so that we keep the good things—the plants, the animals, and the habitat that make Florida, Florida. Phosphate and fertilizer are certainly useful, because they help things grow. But the legend also shows us that we should make money only for a reason, to help us support living things, and if we get greedy there could be bad consequences.

### **Extensions:**

#### *Language Arts:*

1. Discuss with the students how they find the main idea of stories they hear and read.
2. What is the main idea?
3. Identify supporting details - who, what, why, when, where, how.
4. Identify the author's purpose.
5. Demonstrate understanding by listening to read-alouds and then having students explain what they heard.
6. Arrange events in sequence.
7. Recall, interpret, and summarize the information presented orally by the speaker.
8. How was descriptive, idiomatic, and figurative language used to describe the situation?
9. What context clues were used to identify vocabulary?
10. Read more legends and fables. Compare and contrast using graphic organizers.

#### *Science:*

1. Read stories about endangered species and discuss why the species are endangered.
2. Learn more about native and non-native species in Florida by using graphic organizers to classify their characteristics.
3. Take a field trip to one of Central Florida's many reclaimed parks—Circle B, Tenoroc, English Creek—to show students what was discussed in the story.
4. Read books about recycling and conserving; have the class take on a long-term project so that they can see positive results.