



# Discovery Scopes

\*Location of activity provided by staff\*

## Summary

Intro: 3 mins

Explain activity/safety: 2 mins

Pass out materials/ do activity: 15 mins

Conclusion/sharing: 3 mins

**Grades:** (suggested) 4-8

**Subject:** Discovery & Scientific Exploration

## **Activity Objective:**

To have students take a close-up look at natural objects with the use of DiscoveryScopes™ (hand-held wide field microscopes).



## **Materials & Preparation:**

### PROVIDED:

- 12 DiscoveryScopes™
- 10 boxes of objects to be studied
- Owl feather
- Clipboards
- Cactus skeletons

### NOT PROVIDED:

- Drawing paper & pencils
- Large envelope to put students' sketches to bring back to school

PREP: Check the contents of the DiscoveryScope™ box, if time (before the first group arrives) take a walk along the trail to familiarize yourself with the area.

\*CAUTION\* DiscoveryScopes™ are costly precision instruments. They can be damaged with rough use, caution the children to use with care. Make sure all DS are collected at the end of each rotation, along with the box of specimens from each child.

**Key Vocabulary Terms:** mini microscopes, natural objects

**Intro Discussion:** (3 mins)

Explain to the students that we often do not take time to really look at our surroundings. We are only partly aware of what is around us. This center will give us a chance to examine our world more closely. We will have time to sit down and observe a leaf, an insect, a flower, a rock, cactus needles, seeds, or other small parts of nature that we may never notice.

**NOTE:** If you have eight or fewer children in the center, each child receives a DiscoveryScope™. If there are more than eight, they will share.

**Safety/Explain Activity:** (2 mins)

Tell the children that they have time to explore with their lenses and discover a world we seldom see. First they may observe the specimens in the kit. These include such things as jojoba seeds, piece of shed snake skin, spines, saguaro scabs, bone, and pieces of prickly pear skeletons. After they have taken the time to examine these, suggest that they look around the nearby desert for other examples—insects hidden beneath leaves, seeds, flowers.

**EMPHASIZE:** Students are not to injure any animals or plants as they investigate. Mention that the plant and animal material in the specimen boxes were found as displayed. We did not destroy any life.

**Activity:** (15 mins)

Allow the group to make their discoveries for at least 10 minutes. When you feel they are ready for another activity, call the students together. Ask them to share their experiences. What new things did they see?

Give each child a sheet of paper, a clipboard, and a pencil. Instruct the group to think about the objects they found the most interesting and ask them to look at that object again with the DiscoveryScope™ and make a careful sketch of what they see as they look through the lens. If there is time remaining, the children may wish to share their drawings with the group.

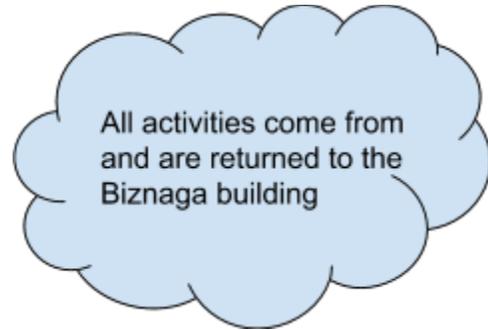
## **Conclusion:** (3 mins or more)

About 3 minutes before the end of the activity period, instruct the students to write their names on their papers and a note of what the sketch is about. Collect the sketches and place them in the envelope to be given to the teacher later.

Collect the DiscoveryScopes™, boxes of specimens, pencils and clipboards. Be sure all items are in your possession before releasing the students from your group.

## **Clean Up:**

Check to see that all materials (DiscoveryScope™, specimens, pencils) are returned. Give the children's sketches to the teacher so that he/she may take them back to school. After the last group, return the kits and clipboards to the table in “Biznaga” building.



## Discovery Scopes - Small Objects Talking Points

### Jojoba Seeds

- More than 1/2 of the inside of the seed is oil (liquid wax)
- Deer, Javelina, BigHorn Sheep and some livestock like to eat Jojoba seeds
- Native Americans used to grind up jojoba seeds to make a butter-like substance, was also used as a conditioner for hair or skin.
- Tohono O'odham use it to treat burns

### Small Miscellaneous Bones

- Bones are from small animals that were found around Camp Cooper
- Bones have many different purposes in a body, can you figure out where you bone could fit in a skeleton?

### Saguaro Scab

- Scabs are the saguaros response to an intrusion, usually by small bugs like a cactus moth
- Scab develops from a sap-like substance inside the saguaro as a way to prevent water loss
- Saguaro boots are much larger, can take up to a year to form after a Gila Woodpecker creates the opening on a saguaro

### Prickly Pear Skeleton

- Prickly Pear fruit is often used in food - lemonade, candy, jelly or syrup are most common
- The pad of the prickly pear is also edible, it's called a "nopal" or "nopalito"
- Prickly Pears native to the Sonoran desert will usually have pink or yellow flowers
- Fruits are usually present in August or September in Tucson

### Spines

- Spines are from a Saguaro, the state flower for Arizona
- Spines can grow up to 1mm per day
- Spines stop growing after the first year
- Tohono O'odham use spines as sewing needles
- Ribs of the saguaro were often used in housing for Native Americans

### King Snake Skin

- Skin came from the shedding of the King snakes that live in the office at Camp Cooper
- King snakes are considered "immune" to rattlesnake venom (that's why they're the king)
- King snakes shed when they are growing (when you grow, you buy new clothes. When snakes grow, they shed their skin)
- The outer layer of the snake skin is made of keratin, which is a protein also found in your fingernails, and it helps protect the snake from damage