Desert Stories 3rd Grade
Remote Lesson
Video 1: Mystery Object
English Transcript

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Hey everybody! It's Mr. Ryan from the Asombro Institute for Science Education. Thanks for joining me today.

Hi everyone! I'm Dr. H with the Asombro Institute for Science Education. Over the next couple of days, you're going to become a desert scientist and use your observation skills to investigate a truly fascinating desert story. We hope you have fun.

Mr. Ryan: But first, we have a mystery to solve! Inside of your Asombro science kit, I need you to grab this mystery object, the ruler, and the science journal. You'll also need something to write with today.

Dr. H.: Let's make some observations. Start with the outside. You might see that this object has three segments. Does it have any cracks or holes? What does it feel like? Turn it over and look inside. What do you notice? The inside is mostly hollow. Gently shake your object. Does anything fall out?

First, let's describe our object using adjectives.

Mr. Ryan: An adjective describes a noun. A noun is a person, place, thing, or animal, and adjectives are used to describe them. The bowl of ice cream is our noun.

Adjectives tell us about the number, size, color, and shape of a noun. Number: it is one bowl of ice cream. Size: it is a large bowl of ice cream. Color: it is a yellow bowl of ice cream. Shape: it is a round bowl of ice cream.

Dr. H.: Now, let's get back to that mystery object. When the video pauses, turn to page two in your science journal and write three adjectives to describe your mystery object. Your adjectives should describe the size or weight, the color, and the texture, or what your object feels like.

Type the favorite adjective that you came up with to describe your object in the space provided.

Mr. Ryan: When studying something like a mystery object, as scientists, we may want to take some measurements like volume, mass, or length. Which one of these tools do you have in your Asombro science kit?

A ruler measures length, so we can find out what the length of our mystery objects are today. Most mystery objects will have this stem-like structure on one end. We don't want to measure that. We just want to measure the actual length of the object. So, with your ruler flat, find the end of your object and line it up with the zero end of your ruler, like this. Then, take your pencil and draw a line across the tip of the object, like this. Now we can look at our ruler and know how long our mystery object is. For this object, we would write down 2 and 3/4 inches because the line we drew is on the third hash mark after the big two. Now it's your turn. Measure your mystery object and report it in your science journal.

You may notice that some mystery objects are kind of small, and some are a little bit larger. Scientists take measurements like length to help us figure out what is a normal size for something like our mystery object. So, to help us figure that out, I measured all the mystery objects in this bag, and I wrote down my data. So now, I can take this information and make a line plot or graph to help us figure out if this mystery object would be smaller, larger, or the same as most other mystery objects. Let's take a look. Let's make a line plot to figure that out.

The first mystery object I measured was two and one-half inches. So, I will find two- and one-half inches on my number line that goes from zero to four inches and write an x right here at two and a half. The second mystery object measured one- and three-quarter inches, so I will write another x here at the one and three quarters mark on my number line. I'm going to continue this until I have plotted all of the mystery object lengths on my number line.

Line plots help us answer questions about our mystery objects. Which is the most common length of mystery objects?

Hmmm. We can tell that it is 2 inches because two on our number line has the highest stack of x's. Compare your mystery object to the length data set, then answer this question:

Is your mystery object smaller, larger, or the same as most other mystery objects?

Now that we've made some observations about our mystery object let's read a book to learn a little bit more. This book is called: Night Life of the Yucca: The Story of a Flower and a Moth, written by Katherine B. Hauth and illustrated by Kay Sather. Did you know that the yucca is the state flower of New Mexico? I wonder if that has something to do with our mystery object?

Well, while we read, look for clues to see if we can figure this out.

Late in May, after rain falls,
clusters of silent waxy bells rise
like desert candles,
creamy white against a turquoise sky.

But the real life of the yucca plant
begins in darkness.

Beneath the night flight of bats
catching insects by the millions,
beneath silent winged owls searching
for mice who search for seeds,
the yucca's flowers open fully.

A small, silver-white moth
enters a flower-petal cave.
She folds her wings and rests.

A male yucca moth finds the
female in her flower.
After mating, he flies away.
The important work
-- for the moth and for the yucca –
has begun.

Dr. H.: What adjective describes what the moths look like? Silver-white? Cave? Folds? Important?

Mr. Ryan: The female moth mines the lode
of golden pollen from six stamens
that circle the thick pistil
in the center of the flower.

Then she kneads the pollen into a ball
about the size of her head.

Dr. H.: What adjective does not describe part of the yucca flower? Female? Golden? Six? Thick?

Carrying her precious package
tucked beneath her neck,
she flies into the night.

Wind-borne fragrance and the
whiteness of waxy flowers guide her.
She visits hundreds of flowers
and many plants, *if* no bat catches her.

Deep inside young blossoms,
she inserts the needle-sharp tip
at the end of her body
into the base of the pistil and lays some eggs.

Dr. H.: Let's think about verbs. A verb is an action word.
What verb can we use to describe what my dog Skye is doing? She is skipping? flying? walking?
Yes! She is walking!

What verb can we use to describe the gopher snake? The gopher snake can jump? Slither? Or swim? Yes! Slither!

What verb can we use to describe the hummingbird? The hummingbird can fly? dig? Or bark?
Yes! Fly!

Mr. Ryan: Then she packs a hunk
of pollen into the tip
of the pistil.
Down and up the pistil. Down and up.
She repeats her egg-laying,
pollen packing action.
The adult moth lives less than a week
to do her work.
The plant does the rest.

In the entire desert, only the yucca moths
bring the pollen that the yucca plant needs
to make seeds that will grow
into young yuccas.
And the yucca seeds are the only food
that the moth's young will eat.

Dr. H.: What verb describes what the moth's young do to the seeds? Packs? Repeats? Bring? Eat?

Mr. Ryan: During the day,
other insects use the yucca.
Hundreds of aphids suck juice from new blooms.
And ants milk the aphids like cattle
for droplets of sugary honeydew.

Sun on sand heats the air like an oven.
Yucca petals droop.
The yucca's pistil swells
with growing seeds.

If aphids do not suck the blossoms dry,
if hail or rain do not knock the blossom off,

if a mule deer doesn't eat the blossom,
in about a week, the moth's eggs hatch.

The moth's young eat some seeds,
but hundreds more survive.
In a month or two, full grown larva
bore through their seed pod caves.

They lower themselves by a silk thread,
And burrow into the ground
to weave sticky cocoons
that will harden like clumps of dirt.

Inside their cocoons,
they wait through fall
when the open yucca pod shares wind-scattered seeds
with mice and ants that also burrow underground, and
when gray waves of sandhill cranes
lap their way across the sky.

They wait through winter
when a sudden snow, like lamb's wool,
caps the nearly empty pods, and
when raven wings make angels in the snow.

Dr. H.: What verb describes what the moth larvae do in the winter? shares? burrow? wait? make?

Mr. Ryan: They wait through spring
when bright blossoms shout the secret of
a desert pin cushion's hiding place, and
when dust devils twirl tumbleweeds,
like spinning tops, high in the air.

By late May no rain has fallen.
The yucca moth will not appear this year.
The yucca plant will not bloom.
They wait for rain.

They wait
as another year goes by.
Summer -- Fall --Winter --

When spring returns, wind-whipped sand

burns the yucca's thirsty leaves.
Dry old pods hang on,
ghosts of the last good year.

Finally, in mid-May
a rush of cold air blows
a single puff of cloud into a giant balloon
that blots out the sun.

Fat drops of rain freckle the sand,
then gush and drench the land.
The yucca's leaves funnel water to its roots.
They will shade its wet roots
when the sun returns.

Booming thunder drums across the night.
Lightning – like fireworks –
celebrates the end of the drought.

One night soon,
the yucca plant will bloom,

and a yucca moth will find it.

Mr. Ryan: Wow, that was a really cool desert story. Who knew a plant and a moth could mean so much to each other? And did you see your mystery object? Yeah! It was an old yucca seed pod! It's really fascinating what a transformation these things go through. Now before you watch the next video, we want to know, are there any questions you may have about the yucca or the yucca moth?

On page 3 in your science journal, you have a large white space to write as many questions as you can think of about the yucca or yucca moth. One thing I would like to learn about yucca seed pods is why are some seed pods bumpy and some are smooth?

When you're done, make sure you put your science journal and your mystery object back inside your Asombro science kit until you're ready for the next video. Great job today, desert scientists! We'll see you next time. Bye, everybody!