

# DAY 4 EXPERIMENT

## Sea Snakes

### WATCH THE SEA SNAKES DANCE

#### Materials (for every student)

- ☐ 3 T. baking soda mixed with 3 T. water
- ☐ ½ gummy worm (see Pre-prep)
- ☐ Kitchen scissors (for Pre-prep)
- ☐ Tweezers (can be shared with other kids)
- ☐ ½ c. white vinegar
- ☐ 9-oz. clear plastic cup
- ☐ Timer
- ☐ Optional: Pictures of sea snakes

#### Pre-prep

Put ½ c. white vinegar in clear plastic cups, one per child. Use kitchen scissors to cut gummy worms in half lengthwise, then in half lengthwise again. Then cut them in thirds horizontally so there are 12 thin, short pieces of gummy worm. Put the gummy worm pieces in the baking soda water mixture and stir around until the gummy worms are covered with baking soda. Let them soak for 20–30 minutes.

Note: Do not soak longer or the gummy candy will dissolve and not work.

#### Teaching Tie-In

Our experiment today has to do with a snake. Have you ever seen a snake? Take responses. When I



think of snakes or serpents, I think of that serpent Satan in the garden of Eden. We don't know exactly what he looked like, but we do know he was a real serpent who really tempted Adam and Eve. Today, we're learning that Adam and Eve fell for the temptation from Satan, and now, as a result, we all sin, causing a loss of relationship with God. We live in a world that isn't perfect anymore, and where hard things sometimes happen. But praise God! There is a rescue plan in place for those who admit they are sinners and believe in Jesus Christ! God is so amazingly loving and kind to send Jesus, and we can have a relationship with him. Do you know him as your loving Savior?

As we think about that, let's do a little experiment that involves snakes—sea snakes.

#### Class Time Directions

Sea snakes are fascinating creatures that live in tropical seas from the Persian Gulf to Japan and Australia. God designed them in an interesting way. They live *in* the water, but they can't breathe *underwater* like fish and other ocean animals can. They have to come up for air.

Let's see how long you can hold your breath, pretending you are underwater. I'll time you. Do so.

People can't last long underwater, but God designed a special, large lung for sea snakes that runs almost the whole length of their body. Why do you think he gave them that? Take answers. Yes, so they can stay underwater longer. In fact, they can stay underwater for up to two hours at a time! Wouldn't that be fun if you could stay underwater at the pool for two hours? God thinks of everything! Now let's try a little experiment.

Give each child a cup with vinegar in it. Have the kids use small tweezers to transfer a baking soda-soaked gummy worm into their vinegar. Observe the sea snakes dancing in the vinegar.

Why do you think our sea snakes move around? Take responses. The sea snakes start moving around because the vinegar reacts with the baking soda that is on the snakes. Vinegar plus baking soda



makes something called *carbonic acid*. Carbonic acid breaks down into water and carbon dioxide. Carbon dioxide is a gas and is less dense than vinegar. The bubbles hold on to the gummy worm sea snake to make it float. When the bubbles pop, the sea snake sinks. That's why we see them dancing up and down!

### Tip Corner

- You can also use a larger container of baking soda water in the middle of the table and have kids share.

- Make sure you have small, lightweight pieces of gummy worm or they won't move much while "dancing."
- Remember to prep the next rotation's gummy worms 20 minutes before the islanders arrive.
- A smartphone can be used for a timer.
- A science term introduced today is *carbonic acid*.