Unit T2 • Models in Science

SCENE: IS BUG SPRAY A BIG DEAL?

Setting: Matt, Keith, and George were getting ready to pack up the tent. Their whole class had gone camping, and it had been a great trip. Keith thought that his backpack was too heavy to carry back, so he decided to dump out anything he didn't think he would need anymore. He was pouring out a bottle of bug spray when George started to yell at him.

George: *(to Keith)* Stop! That's bug spray; you can't dump that on the ground!

Keith: Why not? I put it on my skin, so it can't possibly be dangerous.

George: But maybe it is! Some animal might come along and lick this exact spot! The animal could get sick!

Matt: George, calm down. Animals are usually pretty smart about not licking substances that are harmful to them.

George: But how do you know that the rain won't wash the bug spray into the river down the hill and kill the fish?

Keith: What are you talking about? Rain, rivers, fish? The bug spray will just get soaked up into the ground. It's not going anywhere.

George: Not true! If I dump a bucket of soapy water out my door, I can watch it flow down the street. Just like soapy water, the bug spray can flow through the ground and end up in our drinking water.

Matt thought that George's example of pouring out a bucket of soapy water was interesting because it could relate to this situation with the bug spray.

Keith: So how can you possibly figure out where this little bit of bug spray will end up? You can't test the water everywhere in the county.

Matt: I think it might be possible to figure it out where water flows from where we are now. It sounds big and complicated, but so is the solar system and scientists study that.

George: *(to Matt)* You really think we could figure out what might happen to our water when Keith poisons the ground up here?

Keith: George, I'm not poisoning anything! It's a tiny bit of bug spray.

Matt: *(to Keith)* I agree that you wouldn't poison our entire water supply, but it could be interesting to see if something you dump way up here can make it down to a river.

George: I've heard that big companies used to dump bad things into rivers and they got all the way to the

ocean. It poisoned the fish! *(disgusted)* We're killing fish just because Keith is too lazy to carry his bug spray home.

Keith: (yelling) IT'S JUST THREE OUNCES OF BUG SPRAY!

Matt: Guys, you might both have a point. But for now, calm down and pack up so we can get out of here.

As the three boys hiked back to town with their class, they discussed what the relationship might be between dumping substances on the ground and the problem of water pollution.

- 1. Why does Matt mention the solar system?
 - A) He has always wanted to study the solar system.
 - B) He thinks that if it is possible to study the solar system, it must be possible to study water flow.
 - C) He likes building models.
 - D) He is mad at Keith.
- 2. Why does Keith think the bug spray is not dangerous?
 - A) He always brings it on vacation.
 - B) He read the ingredient list.
 - C) He thinks fish don't need bug spray.
 - D) He often puts bug spray on himself.
- 3. In the reading Matt says, "Guys, you might both have a point." What did he mean by that?
 - A) He thinks there is a relationship between polluted rivers and polluted oceans, but Keith's bug spray alone may not kill any fish.
 - B) He thinks they should build a model to find out what would happen to the bug spray in the rain.
 - C) He wanted Keith and George to stop arguing because he was frustrated.
 - D) He wants Keith to feel bad about dumping out the bug spray onto the ground.

