

Introduction:

Willis is happy with his home, the stream he lives in. He is healthy, with lots of energy and curiosity. The water and stream banks which make up his home are perfect for him!

Willis has everything he needs right here. The water is cool, which is good because cool water holds more oxygen, so Willis can breathe more easily. The trees and shrubs along Willis's stream shade the water and keep it from getting too warm. Food for Willis, like insects and leaves, fall off the shrubs so Willis always has something to eat. While Willis likes this stream, he's a little bored with it, and would like to go on an adventure down stream. Do you think he should leave this part of the stream and see what's out there? Well, Willis decides to leave and heads down stream on his adventure.....

Journey Card 1 :

After a while, Willis notices that the sun is shining and it's no longer so cool and dark in the water. He looks out of the water and notices that there are no more trees. There is a field right next to the river! Something is running into the water from the field. It is dirt from a corn field....

How does it feel to get sediment into your gills, and into your eyes Willis?

Journey Card 1 (LEADER)

“How do fish breathe?”

“What happened? How did the sediment get into the stream?”

Explain how fish breathe and how sediments clog fish gills. Explain how sediment gets into a stream (by wind & rain) when trees and shrubs are removed for farming, building homes, or from logging trees. Without vegetation covering the soil, it washes into the stream and covers the rocky floor of the stream where fish lay their eggs. Eggs can suffocate if they are covered by silt. Fish that feed by sight aren't able to find food.

“Should Willis Go Home?” “NO!”

So Willis continues down stream....

Journey Card 2 :

Willis sees splashing by some BIG black and white animals coming down to visit the water, and they are stirring up the sediment in the stream. The water is really dirty. Willis is having more trouble breathing and sees the animals leaving some big smelly presents!

Ugh! Willis does NOT like the taste or smell of these presents!

Journey Card 2 (LEADER)

Let the students observe and draw their own conclusions on what the cow “presents” really are.

Explain how these presents contribute bacteria and nutrients into the water.

“Should Willis Go Home?” “NO!”

So Willis continues down stream....

Journey Card 4 :

Willis sees a golf ball in the water and a green golf course with very nice grass without any weeds. The grass is growing all the way down to the very edge of the water.

What is this red stuff running down the hill into the water!?

Ewww, this stuff is terrible! What is this stuff!

How do you feel Willis?

Journey Card 3 (LEADER)

Explain that people should not use too much fertilizer on their lawns, or apply it before a heavy rain. Fertilizers contain nutrients like nitrogen and phosphorus. “What happens when we have too many nutrients in the stream?” They accelerate the growth of aquatic plants, which may not seem like a big deal. But when the plants die and decay, the decaying process uses most of the oxygen in the water, leaving very little for creatures like Willis.

“Should Willis Go Home?” “NO!”

So Willis continues on his way down stream....

Journey Card 3:

Willis passes a huge house on a hill with a large lawn sloping down to the water. As he swims on, he notices a lot more houses with big green lawns.

...Hmm, what is this green stuff running off the lawns?

Bleck! It’s too much fertilizer!

How do you feel Willis?

Journey Card 4 (LEADER)

Explain that herbicides as well as pesticides sprayed near lakes and streams can be fatal to plants and other aquatic organisms. It can get into the water by running down hills, spraying too close to the water's edge, or running off into the stream during heavy rains. It may not kill Willis, but it will kill the plants and little animals that Willis needs to eat to survive. Some can also bioaccumulate and eventually kill fish or even make people sick. (You will need to give an example of bioaccumulation)

“Should Willis Go Home?” “NO!”

So Willis continues on his way down stream....

Journey Card 5:

It begins to rain a little as Willis gets to the edge of town. He sees more dirt washing into the river. This time it's coming from some new homes being built.

Willis notices the water is really getting dirty and it's getting even harder to breathe.

How do you feel Willis?

Journey Card 6 (LEADER)

Explain that road salt is good for traffic safety in the winter, but bad for wildlife in general. This includes trees along the roadside, that can die from too much salt. The salt can seep into shallow groundwater– contaminating it. Have you ever had a cut and gotten salt into it?

Willis is swimming faster to get away. He is missing his cool, shady home back up stream.

“Should Willis Go Home?” “NO!”

Willis swims onward

Journey Card 6:

Willis swims under a bridge and notices the water burning his skin a little. The water has also taken on a salty taste.

Why does the water taste so salty?!

Is this bad for Willis?

How do you feel Willis?

Journey Card 7 (LEADER)

We would never do this, would we? I bet Willis feels pretty disgusted with this mess!

What sort of problems can litter create that would affect fish and other wildlife, like turtles and ducks? (think about fishing line, the plastic six pack holders, plastic bags, pop cans)

Lets remember to put our litter in garbage bins or take it with you until you can find a garbage can.

“Should Willis Go Home?” “NO!”

Willis pushes ahead....

Journey Card 7:

Willis passes a log in the river where lots of trash has been snagged. Where does this stuff come from? Why don't people recycle these bottles, cans, and cups?

What's all the small dirty white beads? It might be food to eat!

Should Willis eat the beads?

How do you feel Willis?

Journey Card 5 (LEADER)

You might expect rain falling to the ground and running off the land to be clean. It may be fairly clean if its making its way through lots of vegetation. Vegetation helps to filter the water.

Typically there is no vegetation growing at building sites. Builders are usually required to put up silt fences to trap dirt and prevent it from getting into waterways.

“Should Willis Go Home?” “NO!”

Willis is a tough little fish, who is still up for adventure.
Willis swims on....

Journey Card 8:

Willis swims past a factory.

Willis passes a leaky, rusty, old barrel full of unknown goo from an abandoned factory... ...and the barrel is leaking!
As Willis swims by he sniffs at the barrel.

Ugh! Bad choice.

Journey Card 8 (LEADER)

That barrel was filled with toxic pollutants! Often, toxic waste is stored in barrels – however when the barrels get really old they rust and start to leak. Even if they were buried underground, they can leak into our groundwater, which flows back into our streams and lakes.

He better get out of the area as fast as he can, if he is able.

Whooo, that was a close one

Willis continues to swim downstream....

Journey Card 9:

Willis swims past a storm water outfall.

As Willis is swimming, a little ways downstream, in the town up on the bank, someone is changing the motor oil in their truck. They are letting the old motor oil leek out onto the side of the street where it is running down into the storm drain.

Wait – where does this storm drain lead to?

Journey Card 9 (LEADER)

Where do you think the storm drain leads to?

Directly into a waterway!

Old oil oozes into the stream as Willis swims past the Storm drain outfall! Did you know that just one cup of oil can Poison a tank of water twice the size of this classroom?

Willis's gills begin to clog with oil and he starts to have trouble Breathing. (hold your throat). Willis has come through so Much. Even though he is a tough fish, this was more than he could Withstand. He takes his last breath.

Summary (LEADER)

(You can pull Willis out of the water and explain that he was Just acting and that he will be alright)

What do you think Willis is trying to teach all of us?

Would you like to play, swim, or fish in this stream?

What could have been done to keep the stream a healthy place for Willis and all his friends to live?

- Keep buffers along streams (Why?)
- Keep livestock out of streams (How?)
- Use minimal amounts of chemicals (or use organic)
- Don't use salt on bridges that cross streams
- Don't litter – pick up litter you see
- Recycle motor oil – don't pour anything down storm drains