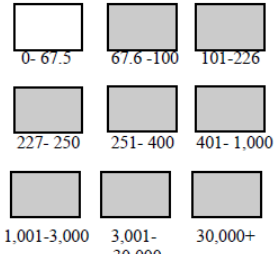
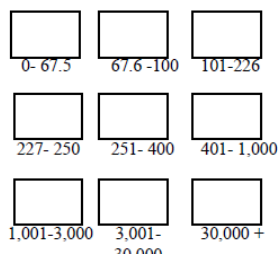
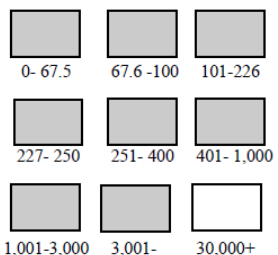
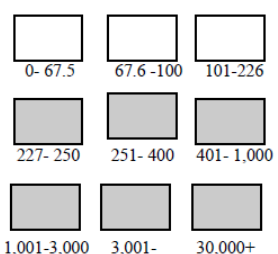


Name \_\_\_\_\_ Student ID \_\_\_\_\_ Date \_\_\_\_\_

## **Salt Water in Streams**

Watch the video on salt pollution in streams in Rochester, MN.

1. When does most of the damage to lakes and rivers from salt pollution occur? *In the winter months.*
2. What does salt contain? Why is that a problem? *It contains chloride, which can be toxic.*
3. How can we get rid of salt that is in water? *You can't get rid of salt once it is in the water except for an expensive reverse-osmosis system.*
4. What are some alternatives to using road salt? *You can use less salt, a brine, liquid corn, or molasses. These compounds help the salt "stick" to the roads so that you need less to melt the ice and snow.*
5. Describe your prediction of what will happen to the eggplant after your teacher applies salt to it.  
*Student answers will vary; many students think the eggplant will "shriveled".*
6. Use the CASE STUDIES provided by your teacher to complete the chart that follows.  
*Case studies courtesy of the Ecology Disrupted project at CUNY & AMNH.*

	Shade in the levels of salt (mg/L) that negatively affect wildlife in this ecosystem? (note: some systems may not require shading)	List at least two organisms that live in this ecosystem.	How will changing salt levels (too much or too little) affect the listed organisms that live in this ecosystem?
<b>FOREST</b>		<ul style="list-style-type: none"> <li>• Mountain Holly</li> <li>• Tamarack Tree</li> <li>• Seed eating birds</li> <li>• Moose</li> <li>• Elk</li> <li>• Deer</li> </ul>	<p><i>Too Much Salt Will:</i></p> <ul style="list-style-type: none"> <li>• Kill Mountain Holly and Tamarack</li> <li>• Interfere with water absorption, root growth and seed sprouting in plants</li> <li>• Increase the risk that seed-eating birds will ingest road salt crystals</li> <li>• Increase the risk of moose, elk, &amp; deer being killed by traffic</li> </ul>
<b>ESTUARY</b>		<ul style="list-style-type: none"> <li>• River Otter</li> <li>• Alewife</li> <li>• Atlantic Sturgeon</li> </ul>	<p><i>These organisms are adapted to live in a wide range of salt levels, so they will be unaffected by salt fluctuations.</i></p>
<b>OCEAN</b>		<ul style="list-style-type: none"> <li>• Great White Shark</li> <li>• Loggerhead Sea Turtle</li> <li>• Horseshoe Crab</li> <li>• North Atlantic Right Whale</li> </ul>	<p><i>It is not possible for people to affect salt levels in the open ocean. However, these organisms will not be able to survive in freshwater tanks.</i></p>
<b>FRESH-WATER</b>		<ul style="list-style-type: none"> <li>• Small freshwater plants and animals</li> <li>• Rainbow Trout</li> <li>• Frogs</li> </ul>	<p><i>Too Much Salt Will:</i></p> <ul style="list-style-type: none"> <li>• Kill small freshwater plants and animals at 226 mg/L.</li> <li>• Kill frogs at 400 mg/L.</li> <li>• Kill rainbow trout at 1,000 mg/L.</li> <li>• Begin to taste badly.</li> </ul> <p><i>Government guidelines do not allow people to drink water with salt levels of 250mg/L.</i></p>

7. Using evidence from the case studies, explain whether you agree or disagree with this claim: “Salt isn’t the problem for ecosystems; the problem is changing the amount of salt in an ecosystem.”

*Each ecosystem has its own level of salt – too much salt can kill freshwater organisms, while not enough salt can kill saltwater organisms. For example, organisms that live in fresh water, such as certain frogs, will die if the chloride level exceeds 400 mg/L.*

8. List three ways that salt can negatively affect organisms in an ecosystem.

- A. *Above 226 mg/L, some small freshwater plants can die.*
- B. *Organisms that rely on those freshwater plants might not have enough food.*
- C. *Mountain holly and tamarack can be killed by high salt levels.*

9. Look at the eggplant that your teacher salted. Describe what has happened to it. Explain why you think this happened.

*The eggplant got very wet, because the salt that was on the surface of the vegetable pulled the water from the eggplant’s cells out through osmosis. Osmosis is the diffusion of water across a membrane – water will move by diffusion from areas of high concentration to areas of low concentration.*