



# Preparing for Severe Winter Weather

## PLEASE NOTE:

Students must complete the "Initiation" section of the **Monster Guard** app before they begin this activity, in order to gain access to the Severe Winter Weather training mission.



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## Opening

Inform students that they are going to learn about severe winter weather and how to stay safe when it is extremely cold outside. Name some different kinds of severe winter weather – blizzards, ice storms, etc. – and ask students to raise their hand if they know what each one is. Then ask them if they have ever experienced severe winter weather or seen it (even on TV). Assess for prior knowledge by asking students to share what they know about winter weather and cold temperatures.

## Monster Guard

Tell students that they will be learning more about severe winter weather with a cool app called **Monster Guard**. Explain that **Monster Guard** was created by the American Red Cross as a way for students to have fun learning, practicing, and sharing how to stay safe during different types of emergencies.

Adapt your teaching instructions to the various methods of playing **Monster Guard** – whether you're using a smart board to play as a class, or having students play in small groups or individually using mobile devices.

Before they begin playing, remind students that they need to watch the videos before and after the training mission for information that will help them complete the classroom activities.

Pass out the activity sheet, read the introduction together, and have students go through the Severe Winter Weather training mission with Hugo. Remind them to write their score in the space provided on the activity sheet. As a class, have students suggest ways they think they could raise their scores the next time.

## Grades 1-3

**PART 1.** Read the introduction to Part 1 of the activity, which reminds students of what they learned about the importance of wearing layers of clothing in cold weather and explains that they will be performing an experiment to test this safety rule for themselves. Have students perform the experiment and enter their observations in the chart. Then have students use their observations to answer the question: Why is it easier to hold the ice cube with a glove on your hand than with bare skin? (The glove provides insulation by trapping air warmed by the students' hand.) Review their answers in a class discussion about the importance of wearing layers of clothing in cold weather.

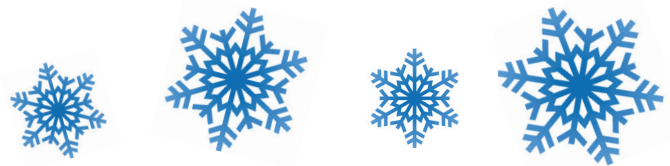
### Experiment

You will need:

- ice cubes
- one glove per student. Ask students to bring their own gloves to class, or have them take turns using one glove.

### Procedure:

- Have students perform the experiment in pairs, so that one can keep time while the other holds the ice cubes.



- Have each student take a handful of ice cubes in their bare hand and their gloved hand.
- Tell students to hold the ice cubes until they get too cold, while their partner keeps time.
- Have students record their times and other observations in the chart on the activity sheet.

**PART 2.** Have students work individually to complete Part 2 of the activity. Remind them that they can replay the **Monster Guard** Severe Winter Weather training mission if they need help. Review the answers in a class discussion.

**Answers:** Gloves, hat, long pants, long underwear, long-sleeve shirt, mittens, scarf, socks, sweater, water-resistant boots, wind-and-water-resistant coat.

*Continued on next page*

## Grades 4-6

**PART 1.** Have students work individually to complete Part 1 of the activity. Remind them that they can replay the **Monster Guard** Severe Winter Weather training mission if they need help. Review the answers in a class discussion.

**Answers:** Gloves, hat, long pants, long underwear, long-sleeve shirt, mittens, scarf, socks, sweater, water-resistant boots, wind-and-water-resistant coat. Other answers are acceptable.

**PART 2.** Read the introduction to Part 2 of the activity, which explains the concept of wind chill temperature and the dangers of frostbite. Have students work individually to complete Part 2 using the wind chill temperature chart. Review their answers in a class discussion.

**Answers:** (1) Wind Chill Temperature:  $-19^{\circ}\text{F}$ ; Josh should not keep shoveling because it would take him another 20 minutes to finish the driveway, for a total of 40 minutes outside in temperatures that can cause frostbite in only 30 minutes. (2) Wind Chill Temperature:  $-42^{\circ}\text{F}$ ; Samantha should not walk to her friend's house because it would take 15 minutes in temperatures that can cause frostbite in only 10 minutes.

### Teachers:

Please provide feedback on this activity using our online feedback form at [www.ymiclassroom.com/mgfeedback-winter](http://www.ymiclassroom.com/mgfeedback-winter).



# Preparing for Severe Winter Weather

Grades 1-3 • Reproducible Master

Hi! I'm Hugo. Winter sports are fun. But severe winter weather can be dangerous. Want to learn more? Download **Monster Guard**. It's a free app from the American Red Cross that teaches kids how to be prepared for emergencies. Choose "Severe Winter Weather" on the main menu to join me on a training mission. You'll learn how to stay safe when you have to be outside when it's really cold.



**Note:** You must have completed the **Monster Guard** Initiation section before you can access the Severe Winter Weather training mission.

My Severe Winter Weather Safety Score: \_\_\_\_\_



## Part 1

You've learned that it's better to dress in layers when you have to go outside in really cold weather. Now do this experiment. Your teacher will have you hold ice cubes in your bare hand and in a hand wearing a glove. Use this chart to write down what happens.

	 Bare Hand	With Glove 
How long could you hold the ice cubes?		
How did your skin feel?		

Now answer this question: Why is it easier to hold the ice cubes with a glove on your hand than with bare skin?

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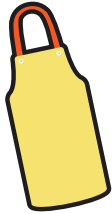
# Preparing for Severe Winter Weather

Grades 1-3 • Reproducible Master



## Part 2

Do you remember your severe winter weather safety training? Show what you learned. Circle the items on this list that it would be better to wear to protect yourself if you have to go outside in really cold weather.



**apron**

**gloves**



**water-resistant boots**



**mittens**



**hat**

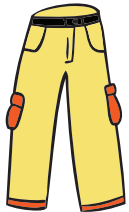
**sandals**



**ice skates**



**scarf**



**long pants**

**sneakers**



**long underwear**



**socks**



**long-sleeve shirt**

**sweater**



**wind-and-water-resistant coat**



**t-shirt**

Replay the Monster Guard Severe Winter Weather training mission. See if you can score higher!



# Preparing for Severe Winter Weather

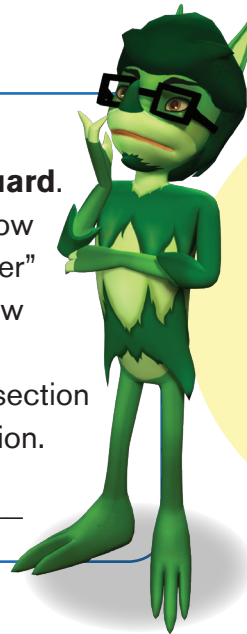
Grades 4-6 • Reproducible Master

Hi! I'm Hugo. Winter sports are fun. But severe winter weather can be dangerous. Want to learn more? Download **Monster Guard**.

It's a free app from the American Red Cross that teaches kids how to be prepared for emergencies. Choose "Severe Winter Weather" on the main menu to join me on a training mission. You'll learn how to stay safe when you have to be outside when it's really cold.

**Note:** You must have completed the **Monster Guard** Initiation section before you can access the Severe Winter Weather training mission.

My Severe Winter Weather Safety Score: \_\_\_\_\_



## Part 1

Do you remember your severe winter weather safety training? Show what you learned by making a list of clothing it would be better to wear to protect yourself if you have to go outside in severe winter weather.

**CLOTHING ITEM**

**WHY IT'S IMPORTANT**








## Part 2

You've probably heard weather reporters talk about the wind chill. They might say, "It's 15 degrees outside, but with the wind chill, it feels like 2 below zero!" Did you ever wonder how it can feel so much colder than it really is?

Your body knows the answer. It produces heat that warms up the air next to your bare skin, creating a thin layer of warmer air on your face and hands. When it is windy, this thin layer of air gets pushed away, and your body has to work harder to keep your bare skin warm. To your body, it feels colder than it really is, because it has to produce as much heat as it would on a much colder day.

Weather forecasters look up the wind chill on a chart like this one. You just need to know the air temperature and the wind speed. The chart also shows how quickly you can get frostbite when the wind chill temperature is really low. Frostbite happens when a part of your body starts to freeze. If you get a tingly or numb feeling, especially in a part of your body that is exposed to the cold, like your ears or nose, that could be frostbite. But with the wind chill chart, you can plan to come inside and warm up before that happens!

Use this wind chill temperature chart to give winter weather advice to the kids in the situations described below. For each situation, use the air temperature and wind speed to look up the wind chill temperature (wct). Then look at the shading for that wind chill temperature to determine how quickly frostbite could occur: in more than 30 minutes, in 30 minutes, in 10 minutes. Use your math skills to figure out when the kids need to come inside to avoid frostbite.

Wind Chill Temperature Chart							
	15°	10°	5°	0°	-5°	-10°	-15°
5 mph	wct 7°	wct 1°	wct -5°	wct -11°	wct -16°	wct -22°	wct -28°
10 mph	wct 3°	wct -4°	wct -10°	wct -16°	wct -22°	wct -28°	wct -35°
15 mph	wct 0°	wct -7°	wct -13°	wct -19°	wct -26°	wct -32°	wct -39°
20 mph	wct -2°	wct -9°	wct -15°	wct -22°	wct -29°	wct -35°	wct -42°
25 mph	wct -4°	wct -11°	wct -17°	wct -24°	wct -31°	wct -37°	wct -44°
<b>Frostbite Times:</b>	<b>&gt; 30 min.</b>			<b>30 minutes</b>		<b>10 minutes</b>	

**1. Air Temperature: 0°F      Wind Speed: 15 mph      Wind Chill Temperature: \_\_\_\_°F**

Josh has been shoveling snow for 20 minutes, but the driveway is only half done. It will take him another 20 minutes to finish. Is it OK for Josh to keep shoveling? Why?

**2. Air Temperature: -15°F      Wind Speed: 20 mph      Wind Chill Temperature: \_\_\_\_°F**

School is closed because of a big snow storm and Samantha wants to play with her friend, Lia. It's only a 15-minute walk to Lia's house. Is it okay for Samantha to walk there? Why?

