

Science is my
favorite subject!

listening and speaking in science

teacher's guide

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a message from our company . . .

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teacher's guide

| | |
|-----------------------------------|---|
| a message from our company | 2 |
| viewing clearances | 2 |
| use and copyright | 2 |
| student learning objectives | 4 |
| assessment | 4 |
| introducing the program | 5 |
| program viewing suggestions | 5 |
| literature connections | 5 |
| key vocabulary | 6 |
| video script | 6 |
| answer key to student assessments | 9 |
| answer key to student activities | 9 |

student activities

| | |
|------------------------|----|
| what do you know now? | 10 |
| what have you learned? | 11 |
| video review | 12 |
| video quiz | 12 |
| conversation rules | 13 |
| active listening | 14 |
| speaking about science | 15 |

student learning objectives

Upon viewing the video and completing the enclosed student activities, students will be able to do the following:

- 1 Explain that a conversation involves two or more people speaking and listening to each other.
- 2 Compare conversations about science to those in other subject areas.
- 3 Describe a conversation that focuses on a science topic.
- 4 Understand that rules of conversation are based on respecting the thoughts, ideas, and opinions of others.
- 5 List some of the basic rules of conversation. These include not interrupting a person who is talking, listening while other people speak, and taking turns to speak.
- 6 Explain that active listening involves using all of a person's attention to understand what's being discussed.
- 7 Cite some of the aspects of active listening such as thinking of questions, and making connections in your mind.
- 8 Know that speaking in science involves the correct use of scientific vocabulary, and the use of details.
- 9 Understand that while explaining things in science it is often helpful to use visual displays.

assessment

what do you know now? (p. 10):

This preliminary assessment is an assessment tool designed to gain an understanding of students' preexisting knowledge. It can also be used as a benchmark upon which to assess student progress based on the objectives stated on the previous pages.

what have you learned? (p. 11):

This post assessment can be utilized as an assessment tool following student completion of the program and student activities. The results of this assessment can be compared against the results of the preliminary assessment to assess student progress.

video review (p. 12):

The video review can be used as an assessment tool or as a student activity. There are two sections. The first part contains questions displayed during the program. The second part consists of a five-question video quiz to be answered at the end of the video.

introducing the program

Before showing students the video, ask them what the weather was like yesterday when they went home from school. Ask them to describe the look of the sky, wind speed, and air temperature. Then ask them to describe the weather this morning as they traveled to school. Compare and contrast the weather from these different times. Ask students to describe how they dressed and how they prepared for the weather.

Next, write the term “conversation” on the board. Explain that a conversation involves two or more people discussing something. Tell the class that they just held a scientific discussion about the weather. Ask them what two important things occur in a conversation. Write the terms “speaking” and “listening” on the board. Tell students that conversation involves both of these things. Tell students to pay close attention to the video to learn more about listening and speaking in science.

program viewing suggestions

The student master “video review” is provided (p. 12) for distribution to students. You may choose to have your students complete this master while viewing the program or do so upon its conclusion.

The program is approximately 10 to 12 minutes in length and includes a five-question video quiz. Answers are not provided to the video quiz in the video, but are included in this guide on page 9. You may choose to grade student quizzes as an assessment tool or to review the answers in class.

The video is content-rich with numerous vocabulary words. For this reason you may want to periodically stop the video to review and discuss new terminology and concepts.

literature connections

Binkow, Howard. *Howard B. Wigglebottom Learns to Listen*. Marina Del Rey: Thunderbolt Publishing, 2006.

Cook, Julia. *My Mouth is a Volcano!* Chattanooga: National Center for Youth Issues, 2006.

Lester, Helen. *Listen, Buddy*. New York: Houghton Mifflin Company, 1995.

Meiners, Cheri J. *Listen and Learn*. Minneapolis: Free Spirit Publishing, 2003.

key vocabulary

conversation
active listening

vocabulary
details

explanation
speaking

video script

1

01 introduction

- 02 Throughout the course of the day you communicate with your family,...
- 03 ... friends,...
- 04 ... maybe even your pets.
- 05 When we communicate, we most often use language.
- 06 Through language we can write or read words.
- 07 We also speak or listen to words.
- 08 Today, we're going to focus on listening and speaking about scientific topics.
- 09 What does listening and speaking about science involve?
- 10 How is it different from listening and speaking in our everyday lives?
- 11 And, how can you learn to listen and speak more scientifically?
- 12 During the next few minutes we're going to answer these questions, and others as we explore listening and speaking in the field of science.

2

13 conversations in science

- 14 Chances are you like talking with family members or friends about things like sports,...
- 15 ... music,...
- 16 ... or activities you enjoy like reading or watching movies.
- 17 When you're doing this you're having a conversation.
- 18 A **conversation** involves two or more people speaking and listening to each other.

you decide 19 What would be said in a scientific conversation about this scene?

- 20 This conversation would focus on the violent weather of heavy rain and hail that just occurred.
- 21 It might involve discussing the size of the hailstones,...
- 22 ... and how they cover the ground and road.
- 23 You might have had other scientific conversations about animals or plants that you see near your home.
- 24 There are many different topics of conversation about science.

3

25 **conversation rules**

- 26 When having a conversation, it's much more enjoyable and educational to follow some simple rules.
- 27 The rules of conversation when discussing scientific topics are based on respecting the thoughts, ideas, and opinions of others.

you
observe28 **What did this person do wrong?**

- 29 That's right, he interrupted the other person who was talking.
- 30 Allowing other people to finish what they're saying and not interrupting them is an important rule of conversation.
- 31 Along the same lines, it's important to listen carefully while other people are speaking.
- 32 Look at them, and not at others while they're talking.
- 33 Take turns. Don't all speak at the same time.
- 34 And, if you're in a large group, it might be a good idea to raise your hand to get permission to speak.
- 35 These are some of the ways conversations can be made more enjoyable in science and in everyday life.

4

36 **active listening**

- 37 Have you ever had someone say to you? - "You're not paying attention."
- 38 Listening closely is very important in science.
- 39 When someone is explaining something about science there can be a lot of detailed information.
- 40 It helps to listen actively. **Active listening** involves using all of your attention to understand what's being said.
- 41 It also involves thinking of questions about things that don't make sense to you.
- 42 Active listening also includes making connections in your mind between new information and things you already know.
- 43 So, as you can see, active listening involves lots of thinking and concentration.

5

44 **speaking in science**you
compare45 **Which scientific explanation is better ...**46 **The bulb lit because the person moved their hand.**47 **Or?**48 **The bulb lit when the circuit was closed.**

- 49 The second explanation is better. It contains more detailed scientific information. It also included accurate scientific **vocabulary** that fully explained what was happening.

6

- 50 Speaking scientifically often involves describing observations in detail.
Details are very important.
- 51 While explaining things in science it's very common to use visual displays.
- 52 For example, sometimes a demonstration involves using equipment or materials to make a point.
- 53 Or, sometimes **explanations** are accompanied by pictures, diagrams, or graphs that illustrate the concept.
- 54 **Speaking** in the field of science is focused, clear, and interesting.

55 video review

- 56 During the past few minutes we explored the topic of listening and speaking in the field of science.
- 57 We began by learning about scientific conversations.
- 58 And, we took a look at some of the rules of conversation such as the importance of not interrupting,...

7

- 59 ... and listening respectfully to others.
- 60 We took a close examination at the process of active listening.
- 61 Next, we explored the process of speaking scientifically. The importance of providing details was highlighted.
- 62 And then we saw how visual displays such as pictures, diagrams, and graphs can be used when explaining something.
- 63 This rounded out our discussion of listening and speaking about science.

64 video quiz

- 65 Fill in the correct word to complete the sentence.
- 66 1. A ____ involves people speaking and listening.
- 67 2. In a conversation, when you're not talking you should be ____.
- 68 3. ____ listening involves lots of thinking and concentration.
- 69 4. Scientific explanations use scientific words called ____.
- 70 5. This person is using a ____ to explain something.

answer key to student assessments

what do you know now?

- 1 speaking and listening
- 2 science
- 3 respect for others
- 4 interrupt others
- 5 finish talking
- 6 look at them
- 7 raise your hand
- 8 daydreaming
- 9 details
- 10 a diagram

what have you learned? (p. 11)

- 1 interrupt others
- 2 raise your hand
- 3 speaking and listening
- 4 a diagram
- 5 respect for others
- 6 details
- 7 science
- 8 finish talking
- 9 daydreaming
- 10 look at them

video review (p. 12)

- 1 The conversation would focus on the violent weather of heavy rain and hail that just occurred.
- 2 The person interrupted the other person who was talking.
- 3 The second explanation is better. It contains more detailed scientific information.

video quiz (p. 12)

- 1 conversation
- 2 listening
- 3 active
- 4 vocabulary
- 5 diagram

answer key to student activities

conversation rules (p. 13)

- 1 A student rudely interrupted another student who was talking. It is best to let other people finish speaking, and not interrupt.
- 2 The students should not be talking while the teacher is speaking. It is best to not speak while the teacher is talking. Allow the teacher to finish before talking to classmates.
- 3 It is not appropriate to shout out answers. It is more polite to raise your hand and have the teacher call on you before answering.

active listening (p. 14)

- 1 Red knots are birds that migrate great distances. They migrate to places where it is easier for them to survive.
- 2 Possible questions might include the following: Do red knots stop to rest during their journey? What do they eat along the trip? How do they know when to migrate?
- 3 Canada geese and other songbirds migrate - how far do they fly? Monarch butterflies also migrate. Why do some animals migrate and others do not?

speaking about science (p. 15)

- 1 When the magnet was brought close to the paperclips, they moved toward the magnet and stuck to it. The pencil was not attracted to the magnet.
- 2 When the tablet was dropped into the water it sank. Almost immediately bubbles moved from the tablet up through the water. You could hear it fizzing.

what do you know now?

Name: _____

Select the best answer for each of the following questions.

1 A conversation involves two or more people doing what?

- running
- walking
- speaking and listening
- not paying attention

2 Discussing the planets is an example of a conversation in:

- science
- history
- sports
- politics

3 Rules of conversation are based on:

- nothing
- being mean
- math
- respect for others

4 While in a conversation, what should you not do?

- be polite
- listen
- interrupt others
- let others finish

5 While someone is talking, allow them to:

- finish talking
- act silly
- get off-topic
- fall asleep

6 While someone is talking you should:

- look around the room
- look at them
- whistle
- sleep

7 If you are in a large group, it's a good idea to do what before speaking:

- holler
- nothing
- raise your hand
- eat

8 Which is not part of active listening?

- paying attention
- thinking of questions
- making connections in your mind
- daydreaming

9 Speaking about science often means using lots of:

- make-believe words
- details
- confusing words
- boring words

10 Which visual display would help explain the parts of a tree?

- a graph
- a bar table
- a microscope slide
- a diagram

what have you learned?

Name: _____

Select the best answer for each of the following questions.

1 While in a conversation, what should you not do?

- be polite
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- interrupt others
- let others finish

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- look at them
- whistle
- sleep

video review

| |
|-------------|
| Name: _____ |
|-------------|



You decide

What would be said in a scientific conversation about this scene?



You observe

What did this person do wrong?



You compare

Which scientific explanation is better? The bulb lit because the person moved their hand. Or? The bulb lit when the circuit was closed.

video quiz



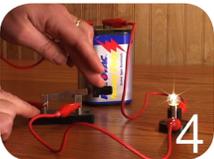
A _____ involves people speaking and listening.



In a conversation, when you're not talking you should be _____.



_____ listening involves lots of thinking and concentration.



Scientific explanations use scientific words called _____.



This person is using a _____ to explain something.

conversation rules

Name: _____

When having a conversation, it is much more enjoyable and educational to follow some simple rules. The rules of conversation in science are based on respecting the thoughts, ideas, and opinions of others.

Directions: Read what happens in the conversations below. Explain what goes wrong. Then explain the proper way to act in a conversation.

- 1** A student is explaining to the class the difference between hail and snow. Suddenly, another student interrupts with their own explanation.

What went wrong? _____

Better approach: _____

- 2** While the teacher was talking, several students were talking to each other.

What went wrong? _____

Better approach: _____

- 3** The teacher asked a question. Many students shouted out the answer at the same time.

What went wrong? _____

Better approach: _____

active listening

| | |
|-------|-------|
| Name: | _____ |
|-------|-------|

Directions: Your teacher will read the following passage to the class. While it is read, listen actively. Listen closely to the details. Also think of questions, and make connections in your mind to other similar information.



Passage Read by Teacher

Some birds migrate great distances. Migration is the seasonal movement of animals to places where it is easier for them to survive. For example, amazing birds, called red knots migrate thousands of kilometers all the way from the tip of South America to the Arctic every spring. In the fall when the weather cools, they fly back again!

Questions:

1 Explain two details about red knots.

2 What questions do you have?

3 What connection did you make in your mind to other animals that migrate?

speaking about science

| |
|-------------|
| Name: _____ |
|-------------|

Speaking about science topics involves describing observations in science. Details are very important. It is also important to use correct science vocabulary.

Directions: You will perform two experiments. Describe your observations to your partner. Together improve your observations. Then explain to your teacher what you observed.

Experiment 1

In this experiment you will take a magnet and slowly move it toward a pile of paperclips. Describe your observations. Then, do the same thing with the magnet and a pencil. Describe your observations. Write your final observations below.

Experiment 2

In this experiment you will drop an effervescent antacid tablet into water. Explain what you observe. Describe what you see and hear. Write your final observations below.
