visual learning systems

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starting with questions

teacher's guide

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a message from our company . . .

Visual Learning is a Vermont-based, family owned company specializing in the creation of science programs. As former classroom science teachers, we have designed our programs to meet the needs and interests of both students and teachers. Our mission is to help educators and students meet educational goals while experiencing the thrill of science!

viewing clearances

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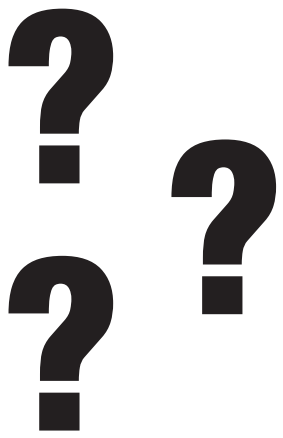

teacher's guide

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student activities

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student learning objectives

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

1. Understand that questions are statements to which we are trying to find answers.
2. Know that questions involve asking.
3. Differentiate between various types of questions, and explain the information they are seeking.
4. Explain why the process of asking questions is an important part of learning new things.
5. Know that sometimes people ask questions about problems or how to solve problems.
6. List some examples of words often used in asking questions. Examples of question-asking words include: how, who, what, when, where, and why.
7. Understand the important role questions play in science and engineering.

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 program, have students describe how they would go about finding the following information. Have them explain how they would go about finding out a friend's favorite color. Then, ask students what they might do if they did not understand something explained in class. Have students explain how they would phrase their questions.

Next, tell students to write the question they are interested in finding the answer to. You can also do this as a class, and together write the questions on the board. Then, discuss how these questions might be answered. Explain that questions are asked to obtain information or to help solve problems. Explain how questions are important in science and engineering. Have students write down a question that a scientist or engineer might ask. Tell students to pay close attention to the video to learn more about questions.

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

Catalanotto, Peter. *Question Boy Meets Little Miss-Know-It-All*. New York: Atheneum/Richard Jackson Books, 2012.

Garrett, Ginger. *Scientists Ask Questions*. New York: Childrens Press, 2005.

Maynard, Christopher. *I Wonder Why Planes Have Wings: And Other Questions About Transportation*. New York: Kingfisher, 2012.

Pfister, Marcus. *Questions Questions*. New York: NorthSouth Books, 2011.

Ripley, Catherine. *Why?* Toronto: Owlkids, 2010.

key vocabulary

question	how	why
answer	where	who
problem	when	

video script

1 introduction

01 As soon as you woke up this morning you started asking questions even
02 though you may not have realized it.
03 You may have wondered what the weather was going to be like for the day.
04 Or, what was for breakfast.
05 Or, maybe you asked someone the score of a game that was played the night
before.
06 Life is full of questions. And, questions are particularly important in learning
about the world around us.
07 What exactly are questions?
08 How are questions developed?
09 And, why are questions important in science engineering?
10 During the next few minutes we're going to explore these issues and others,...
11 ... as we investigate questions.

2 questions

12
13 What color is this flower?
14 How fast is this person running?
15 How do birds fly?
16 What makes waves in the ocean?
17 These are all examples of questions. But, what exactly are questions?
18 **Questions** are statements to which we're trying to find answers. Questions
involve asking.

you describe

19 **Explain why you usually ask questions.**
20 Most likely you ask questions so you can get an **answer**. You may want
information to help you do something, or to better understand something
important to you.
21 There are many different kinds of questions. Some ask for simple facts or
observations.

22 Others seek more detailed explanations.
23 Asking questions is a very important part of learning about the world around us.

3 describing problems

24
25 Sometimes people want information when they ask a question.
26 For example, a person who just arrived at this soccer game may ask someone - what is the score?
27 Or, a person may ask you - how tall are you?
28 But, sometimes people ask questions about problems.
29 A **problem** is something that's hard to deal with. Or, perhaps, a source of trouble.

you decide

30 **What question would you ask to help with the problem shown here?**
31 A natural question might be - "How do we clean up the spilled milk?"
32 One answer would be to wipe it up with a sponge or towel.
33 There can be many different questions about the same problem but asked in different ways.

4 asking questions

34
35 Maybe you have heard someone say - the only stupid question is the one that is not asked.
36 This is very true. When trying to understand things it is very important to ask questions no matter how silly the question may seem.
37 There are many different ways questions can be asked.

you decide

38 **List a couple of words that can be used to begin a question.**
39 Examples of words that can be used to begin a question include **how**, **what**, **where**, **when**, **why**, and **who**.
40 The words chosen to ask a question are important because they point toward the direction the question will be answered.
41 For example, when wondering about the amount of snow that will fall in a day, you wouldn't say - "What snow will fall today?"
42 Instead you would ask "How much snow will fall today?"

5 questions in science and engineering

43
44 In science and engineering questions are very important.
45 Questions are often used to solve problems or to create new ideas or information.
46 An early Greek philosopher said, "To ask the right question is to know half the answer".

47 This is often true in science and engineering. This is why people that work in these fields often work hard at forming good questions about problems they are trying to solve, or knowledge they are trying to form.

6 Graphic Transition - video review

48
49 During the past few minutes we explored the importance of asking questions.
50 We began by looking at some examples of simple, everyday questions.
51 And, we explored how questions are asked to get information or solve problems.
52 Asking questions is an important part of learning about our world.
53 We then learned how to ask questions using words such as what, where, how, when, why, and who.
54 The importance of asking the right kind of question for a given situation was highlighted.
55 Last, we discussed the importance of questions in science and engineering.
56 We learned that questions are a key part of solving problems and creating new ideas.
57 This rounded out our exploration of questions.

7 video quiz

58
59 Fill in the correct word to complete the sentence
60 1. ____ involve asking.
61 2. You often ask a question to get an _____.
62 3. Asking questions is a very important part of _____.
63 4. To find out the amount of something, you ask ____ much?
64 5. Questions are often used to help solve _____.

answer key to student assessments

what do you know now?

1 question
2 answers
3 asking
4 learning
5 problem
6 how much?
7 where to meet?
8 how far?
9 what animals live here?
10 how do we build faster planes?

what have you learned? (p. 11)

1 where to meet?
2 learning
3 how do we build faster planes?
4 how much?
5 question
6 what animals live here?
7 answers
8 problem
9 asking
10 how far?

video review (p. 12)

1 You ask questions so you can get an answer, information to help you do something, or to better understand something important to you.
2 A natural question might be - “How do we clean up the spilled milk?”
3 Examples of words that can be used to begin a question include how, what, where, why and who.

video quiz (p. 12)

1 questions
2 answer
3 learning
4 how
5 problems

answer key to student activities

forming questions (p. 13)

1 where, D
2 who, E
3 how, B
4 why, F
5 when, A
6 what, C

questions and answers (p. 14)

1 round
2 six
3 the prairie
4 protection

ask a question (p. 15)

1 How does this bird get its food?
2 What is surrounding this planet?
3 When is this instrument used?
4 Where does this mushroom live?
5 Why is this ice cube melting?
6 Who is this person and what was his job?

what do you know now?

Name: _____

Select the best answer for each of the following questions.

1 **"What is a flower?" This is a(n):**

- ⬭ opinion
- ⬭ question
- ⬭ statement
- ⬭ observation

2 **When we ask a question, we are trying to get:**

- ⬭ confused
- ⬭ answers
- ⬭ tired
- ⬭ money

3 **Questions involve:**

- ⬭ statements
- ⬭ seing
- ⬭ asking
- ⬭ explaining

4 **Questions are an important part of what?**

- ⬭ leaving
- ⬭ giving
- ⬭ taking
- ⬭ learning

5 **Suppose your computer broke. You would ask questions to help solve the:**

- ⬭ question
- ⬭ problem
- ⬭ success
- ⬭ statement

6 **If you wanted to ask the amount of something, you would ask:**

- ⬭ when?
- ⬭ how much?
- ⬭ why?
- ⬭ where?

7 **If a friend wanted to meet you after school, you might ask them:**

- ⬭ where to meet?
- ⬭ what number?
- ⬭ who won the game?
- ⬭ how much rain?

8 **To find out the distance you ran, you would ask:**

- ⬭ what time?
- ⬭ how was the weather?
- ⬭ who did you see?
- ⬭ how far?

9 **What question might a scientist ask?**

- ⬭ what animals live here?
- ⬭ what time is it?
- ⬭ when is lunch?
- ⬭ how bad is traffic?

10 **Which question might an engineer ask?**

- ⬭ when will it snow?
- ⬭ how do birds fly?
- ⬭ how do we build faster planes?
- ⬭ what team won the game?

what have you learned?

Name: _____

Select the best answer for each of the following questions.

1 **If a friend wanted to meet you after school, you might ask them:**

- ○ where to meet?
- ○ what number?
- ○ who won the game?
- ○ how much rain?

2 **Questions are an important part of what?**

- ○ leaving
- ○ giving
- ○ taking
- ○ learning

3 **Which question might an engineer ask?**

- ○ when will it snow?
- ○ how do birds fly?
- ○ how do we build faster planes?
- ○ what team won the game?

4 **If you wanted to ask the amount of something you would ask:**

- ○ when?
- ○ how much?
- ○ why?
- ○ where?

5 **"What is a flower?" This is a(n):**

- ○ opinion
- ○ question
- ○ statement
- ○ observation

6 **What question might a scientist ask?**

- ○ what animals live here?
- ○ what time is it?
- ○ when is lunch?
- ○ how bad is traffic?

7 **When we ask a question, we are trying to get:**

- ○ confused
- ○ answers
- ○ tired
- ○ money

8 **Suppose your computer broke. You would ask questions to solve the:**

- ○ question
- ○ problem
- ○ success
- ○ statement

9 **Questions involve:**

- ○ statements
- ○ seeing
- ○ asking
- ○ explaining

10 **To find out the distance you ran, you would ask:**

- ○ what time?
- ○ how was the weather?
- ○ who did you see?
- ○ how far?

video review

Name: _____

You describe

Explain why you usually ask questions.

_____

_____

You decide

What question would you ask to help with the problem shown here?

_____

_____

You decide

List a couple of words that can be used to begin a question.

_____

_____

video quiz

_____ involve asking.

You often ask a question to get an _____.

Asking questions is a very important part of _____.

To find out the amount of something, you ask _____ much?

Questions are often used to help solve _____.

forming questions

Name: _____

There are many different ways questions can be asked. Examples of words to begin a question include how, what, where, when, why, and who.

Directions: Write the correct word in each sentence to form a question. Then draw a line to the correct answer.

1 _____ is Argentina?

2 _____ was Marie Curie?

3 _____ many hours are in one day?

4 _____ do some animals migrate?

5 _____ did the first person walk on the moon?

6 _____ makes plants green?

A The first person walked on the moon on July 20, 1969. His name was Neil Armstrong.

B There are 24 hours in one day.

C Plants are green because they have a green substance called chlorophyll inside them.

D It is in South America.

E She was a physicist and chemist.

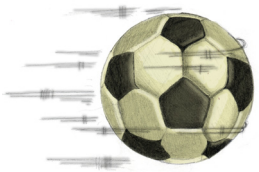
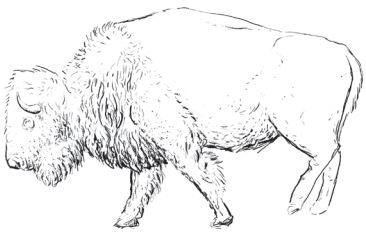
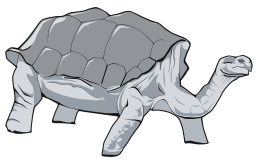
F Some animals migrate for food, or different climates.

questions and answers

Name: _____

You usually ask a question so you can get an answer. Asking questions is a very important part of learning about the world around us.

Directions: Draw a line to match the correct question to the correct answer. On the back write three of your own science questions. See if anyone knows the answers!

Question	Answer
1 What is the shape of this ball? 	The prairie
2 How many leaves are shown? 	Round
3 Where does this bison live? 	Protection
4 Why does this tortoise have a shell? 	Six

ask a question

Name: _____

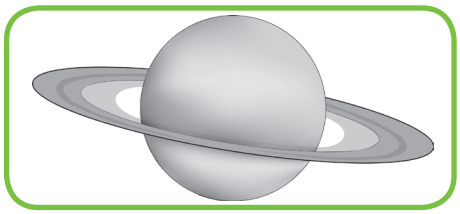
Directions: Questions are statements to which we are trying to find answers. Questions involve asking. Write a question you want answered about each picture.

1

Question:_____

_____

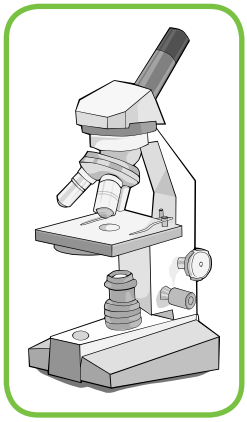
2



Question:_____

_____

3



Question:_____

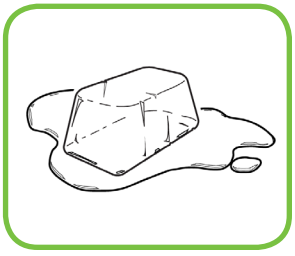
_____

4

Question:_____

_____

5



Question:_____

_____

6

Question:_____

_____