

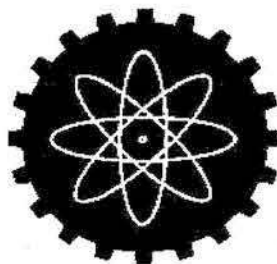
# RELEASED ITEMS

Missouri Assessment Program (MAP)

Intermediate Science

Spring 2000

Grade 7



## Document Contents:

From Test Booklet- "Tulips"

Session 1 -Items 1, 2, and 3

Session 2-Items 1, 2, 3, and 4

Scoring Guides

Missouri Department of Elementary and Secondary Education

## INTERMEDIATE CONSTRUCTED RESPONSE

1. Why do dark-colored clothes help you stay warmer in winter and light-colored clothes help you stay cooler in summer?

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Explain why wearing two layers of clothing that are each  $\frac{1}{8}$  inch (.31 cm) thick helps keep you warmer than does a single layer of the same materials that is  $\frac{1}{4}$  inch (.63 cm) thick.

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2. Electronic devices are now available for individuals to monitor their own blood pressure, blood glucose levels, and heart rates.

(a) Explain how the use of such devices could be beneficial to a person.

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(b) Explain one possible risk to using such a device.

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3. List three physical characteristics used to classify minerals.

1. 

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2. 

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# INTERMEDIATE PERFORMANCE EVENT

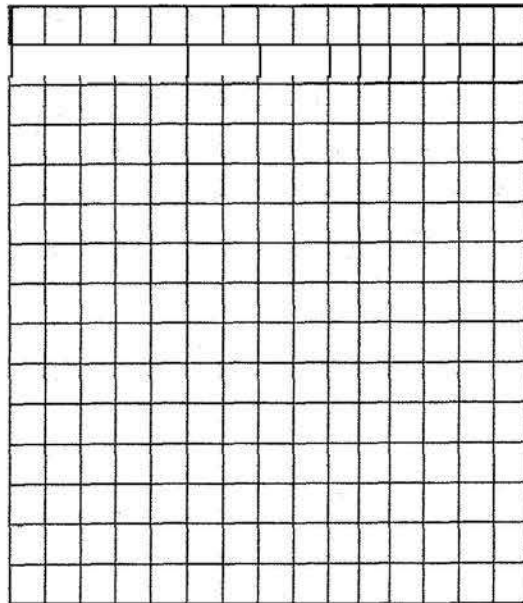
## TULIPS

You are the owner of a company that supplies local florists with tulips. Last year the tulips you produced tended to be smaller than usual and you wonder if it had something to do with warmer soil temperature during the previous winter. The data below shows how the temperature of the ground in which tulip bulbs lie dormant in the winter affects the rate of growth of tulip plants.

HEIGHT OF TULIP PLANTS  
ONE WEEK AFTER BREAKING THROUGH SOIL

	AREA A	AREA B	AREA C
Ground Temperature in Winter	7 C	2 C	0 C
Average Height of Plants	4 cm	8 cm	14 cm

1. Use the grid below to display the data from the chart as a line graph. Label and provide a number scale for each axis, and give your graph a title.



2. Based on the data on Page 2, describe the relationship between ground temperature in **winter** and the height of tulip plants after a week of visible growth.

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3. Describe three variables other than winter ground temperature that might affect the rate at which tulip plants grow.

1. 

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2. 

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3. 

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4. Did the data on Page 2 convince you that winter ground temperatures affect the rate of growth of tulips? Explain your answer.

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Missouri Assessment Program  
Spring 2001

Science

Released Items  
Grade 7

**7** Mary noticed rust spots beginning to form on her bicycle fender on areas where the paint had come off.

What chemical change had occurred? Be sure to name two specific elements involved in this change.

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Why did this change occur only where the paint had come off the fender?

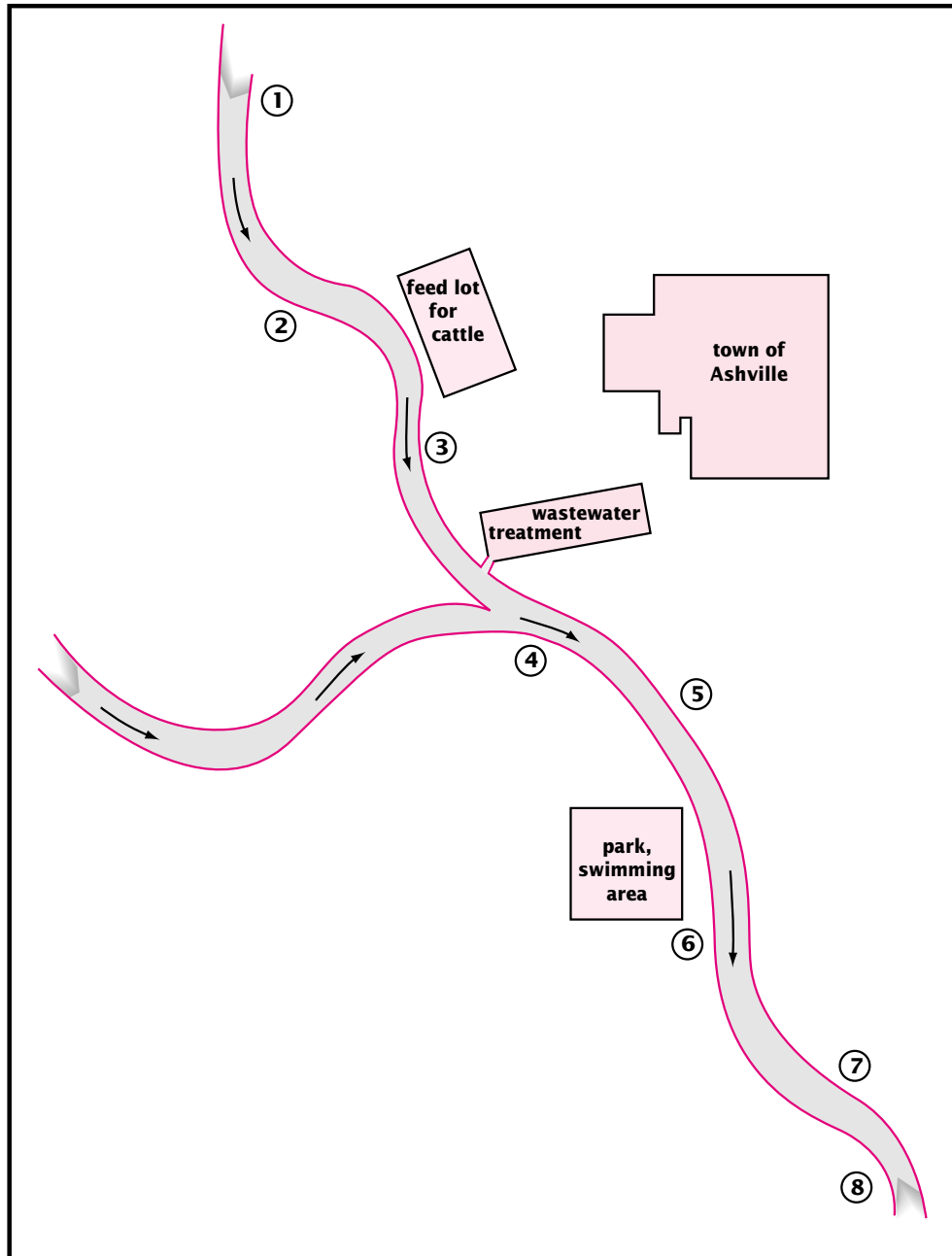
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## Stream

The river shown below is used for swimming, fishing, boating, and other recreational purposes. The County Parks Association has conducted research and gathered data as displayed in the charts on the next page. Study the charts to help you answer the questions on Pages 7 and 8.



**Chart 1:**  
**Maximum levels of bacteria considered safe**  
**for water-related human activities.**

Human Activity	Allowable Levels of Bacteria in 100 mL of Water
Drinking	less than 1
Swimming	less than 200
Boating	less than 1000
Avoid any contact with skin	more than 1000

**Chart 2:**  
**Kinds of fish that can survive in varying levels of dissolved oxygen.**

Dissolved Oxygen Levels in mg per Liter of Water	Kind of Fish
8 and above	pike, trout, bass, sunfish, catfish, carp
5 to 7	bass, sunfish, catfish, carp
2 to 4	catfish, carp
1 and below	none

**Chart 3:**  
**Eight research sites along the river and data collected at each site.**

Research Site	Water Temperature in °C	Bacteria Levels in 100 mL of Water	Dissolved Oxygen Levels in mg/L
1	25	70	8
2	25	75	8
3	25	1500	1
4	25	750	3
5	25	300	5
6	25	150	6
7	25	80	8
8	25	70	8



- 4 At which research site is the river most unhealthy for living things? Why do you think so? Use the map and charts to support your answer.

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- 5 Based on Chart 3, what happens to dissolved oxygen levels as bacteria levels in water increase?

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- 6 The fishermen are concerned about the absence of trout in the river near Research Site 4. Use the information from Chart 2 to explain why trout are not present in this part of the river. Also explain the role played by the level of bacteria at Site 4 in making the area uninhabitable for trout.

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**7** Many children swimming in the river near Research Site 6 have become ill from unknown causes. There is a rumor that the sickness is related to the location of the wastewater treatment plant. You have concluded that the wastewater treatment plant is not related to the cause of the illness. Using information from the map and charts, give two reasons for your conclusion.

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_

**8** Recommend a site for a new recreational county park where safer swimming, boating, and fishing could take place. What information from all three charts did you use to support your decision?

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## Part 2

- 26** Explain in detail what causes summer and winter in Missouri. You may draw a diagram of Earth and the sun to help with your explanation, but a diagram is not required.

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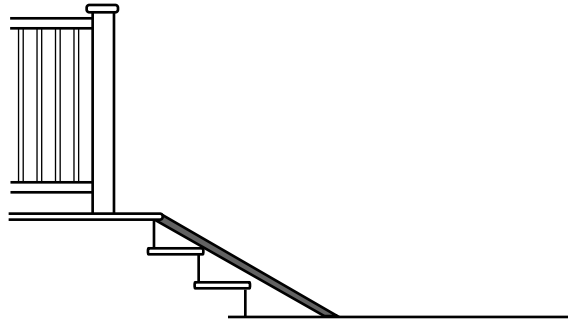
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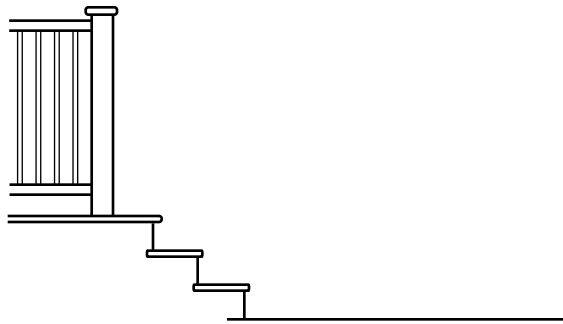


**29**

Mr. Jones uses a wheelchair ramp to propel his wheelchair from the sidewalk up to his porch. Look at the picture of the ramp.



On the diagram below, draw a picture of another ramp that would make it easier for Mr. Jones to propel his wheelchair from the sidewalk to the porch.



Explain why this ramp would be easier for Mr. Jones to use.

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Would the ramp you drew reduce the amount of work needed to propel the wheelchair from the sidewalk to the porch? Explain your answer.

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Missouri Assessment Program  
Spring 2002

Science

Released Items  
Grade 7

Confidential

**9**

A baseball player swings his bat and hits the baseball with a force of 8 newtons. How much force does the ball exert on the bat?

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Describe two forces acting on the ball as it is flying through the air.

1. 

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2. 

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**10**

Some plants reproduce asexually by sending out an underground stem called a rhizome. At the growing end of the underground stem, roots appear and a shoot forms that will become a new plant.

Compare the traits of the new plant with the parent plant.

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Explain your answer.

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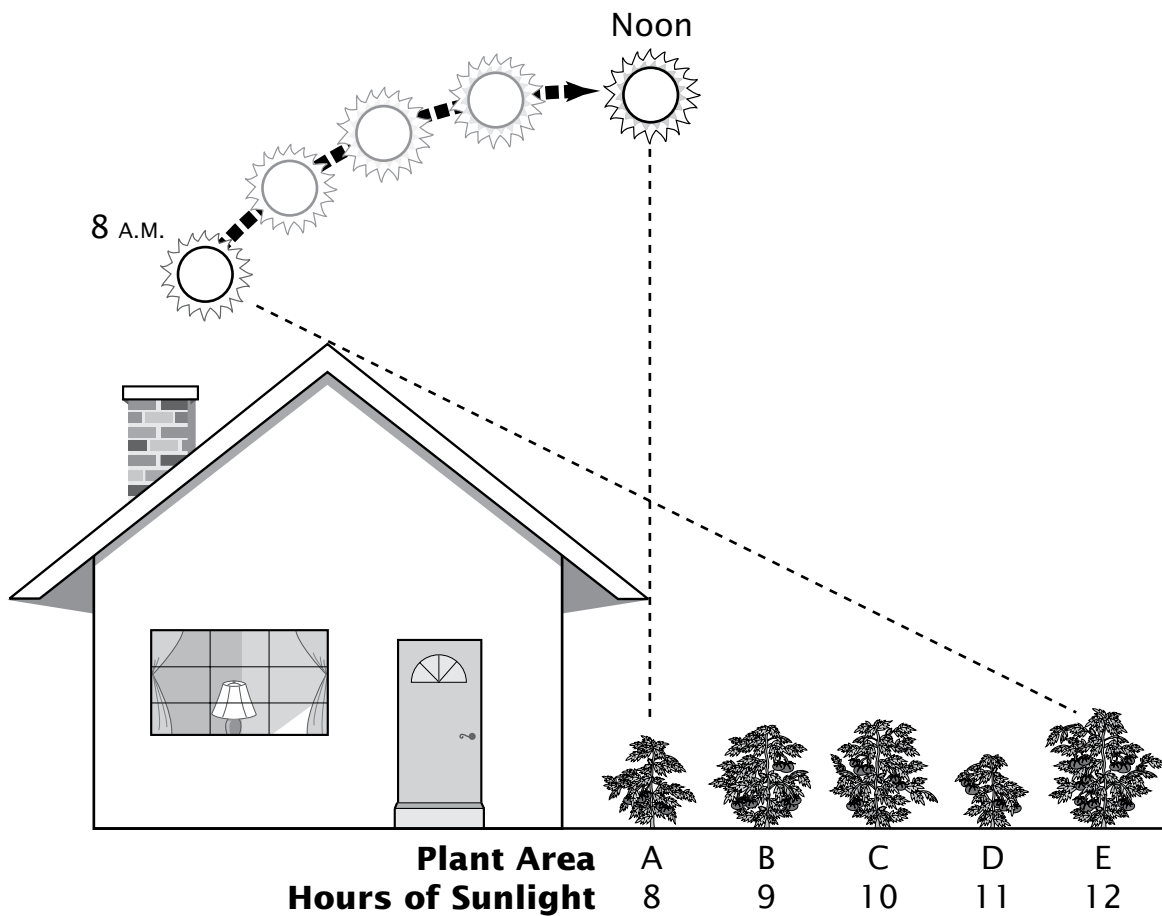
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## Ada's Tomatoes

Four things affect plant growth: sunlight, water, air, and soil. Ada planted tomatoes in her garden. She chose to investigate the effect of the amount of sunlight on the size of the tomatoes.

Ada planted five tomato plants at different distances from her house. The picture below shows how the shadow of the house moves across the garden from 8:00 A.M. to noon. The plants closest to the house get the fewest hours of sunlight. The plants farthest from the house get the most hours of sunlight.





**7**

Ada decided to repeat her experiment using 100 tomato plants instead of 5. Why is it a good idea to use many plants instead of a few?

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**8**

Ada read that the type of fertilizer can affect the size of tomatoes. She decided to compare organic fertilizer and chemical fertilizer.

- (a) Write a correctly worded question that could be the basis of her scientific investigation.

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- (b) Write a correctly worded hypothesis for the question you wrote above.

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**9**

What will be the independent and dependent variables in the experiment suggested in Number 8 ?

Independent variable \_\_\_\_\_

Dependent variable \_\_\_\_\_

# **Missouri Assessment Program Spring 2004**

**Science**

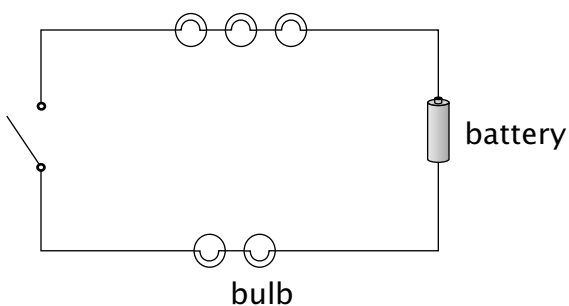
**Released Items**

**Grade 7**

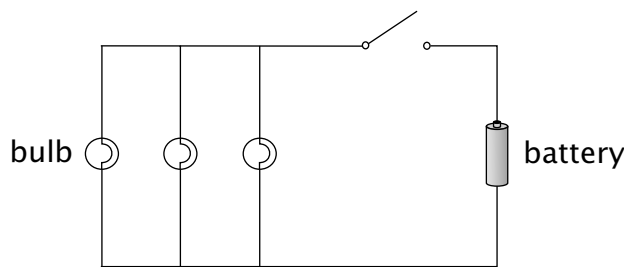


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**5** Which drawing below shows light bulbs connected in a parallel circuit? \_\_\_\_\_



**A**



**B**

What is an advantage of using a parallel circuit to make a string of decorative (party) lights?

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*Go On* ►

7

A seventh-grade science team was impressed with a magazine article on body language. The team had access to a video camera. Without telling their classmates, they videotaped their classmates at lunch through a one-way mirror.

- (a) May they use and publish the information in this video as part of a report? Explain your answer.

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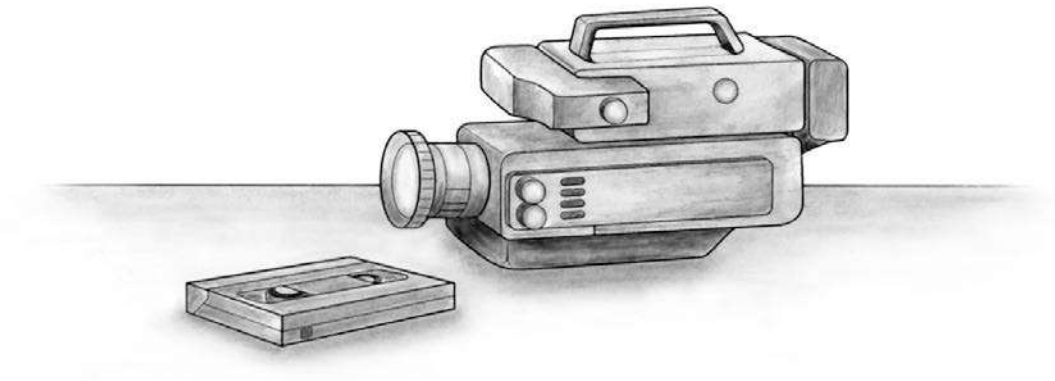
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- (b) How can this team obtain and use videotapes of individuals behaving spontaneously at unguarded moments?

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Go On ►

**8**

Some cells have structures called chloroplasts, which contain the green pigment chlorophyll.

- (a) Explain the role of chloroplasts in these cells.

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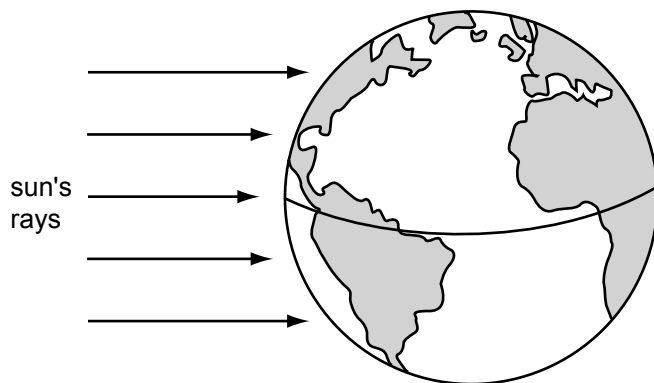
- (b) Name two things from the environment that chloroplasts must have to perform this role.

1. 

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2. 

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Explain why sunlight creates a pattern of decreasing temperature as someone moves from the equator toward areas at higher latitudes.

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Go On ►

# **Missouri Assessment Program Spring 2005**

**Science**

**Released Items**

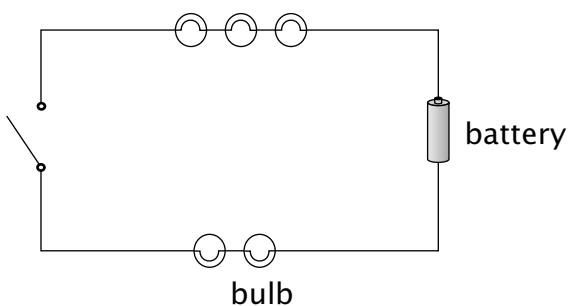
**Grade 7**



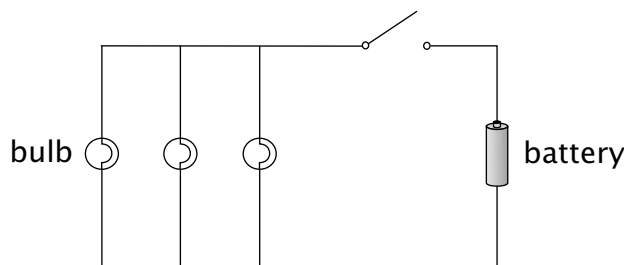


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*Go On* ►

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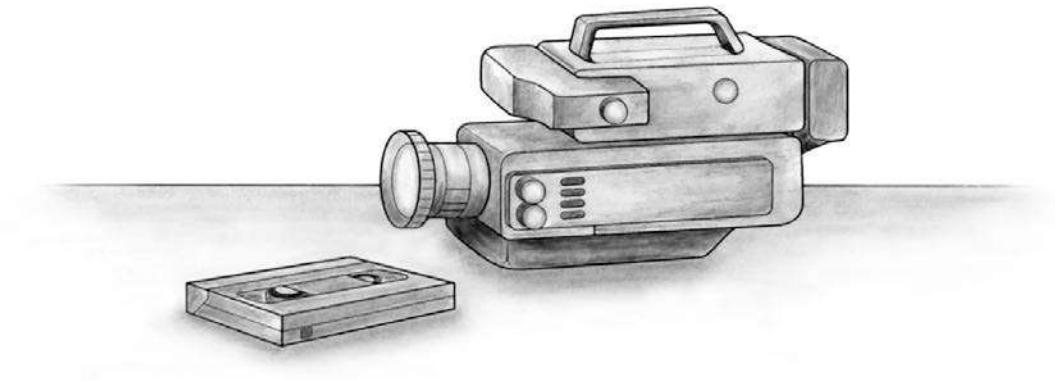
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- (b) How can this team obtain and use videotapes of individuals behaving spontaneously at unguarded moments?

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Go On ►

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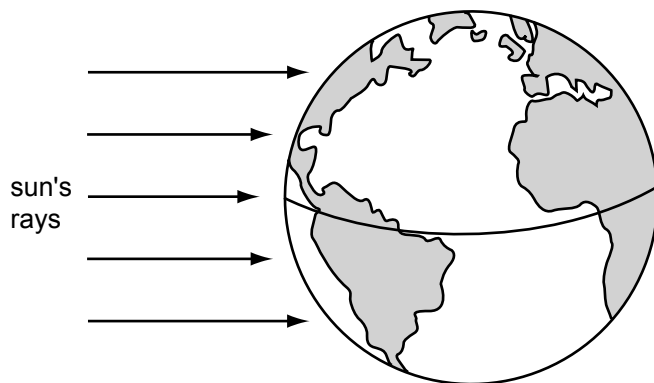
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