

Reaction Time

Teacher Information

Time Allowance

50 minutes

Background Information

Making a physical response to a stimulus from the environment requires:

1. Detection of the stimulus by a receptor such as the eyes or ears;
2. Interpretation of the stimulus and transfer of the signal through the nervous system;
3. The actual motion signals the response.

Materials

meter stick (per group)

Data Log (per student)

stopwatch or clock with second hand

blindfold (per group), optional

Procedure

1. Distribute activity sheet to student pairs.

Enrichment Activities

1. Discuss whether you think reaction time is different in space.
2. Compare sound and visual reaction time data.
3. Compare reaction time data for different groups of people (e.g., different ages, and sexes).
4. Have the students develop their own reaction time test.

Reaction Time

Student Information

Objective

To test for visual and auditory (sound) reaction time and to find if there is a difference between the two.

Materials

meter stick
Data Log
stopwatch or clock with second hand
blindfold (optional)



Procedure

Activity One – Visual Reaction Time

1. Choose a partner. One student will be the test giver and the other will be the test taker.
2. The test giver will stand and release the meter stick for the test taker. The test taker should hold the meter stick with the 1 cm mark pointing down and the end of the stick should be just above the hands of the test taker.
3. The test taker will kneel on the floor and hold his/her hands 5 centimeters apart with the palms facing each other.
4. The test giver should drop the meter stick when the test taker is ready.
5. The test taker should clap his/her hands together and catch the stick as quickly as possible.
6. The test giver should record the cm mark where the test taker caught the meter stick. Record the data on the Data Log under VISUAL.
7. Do the test three times and then calculate the average time for each test.
8. The test giver and the test taker should trade places and try the test again.

Activity Two – Auditory Reaction Time

1. Use the same procedure as Activity One, except this time the test taker will be blindfolded or will keep his/her eyes closed.
2. The test giver will give an audio signal when he/she releases the meter stick.
3. The test giver will record the cm mark where the test taker caught the meter stick. Record the data on the Data Log under AUDITORY.
4. Do the test three times and then calculate the average time for the test.
5. The test giver and the test taker should trade places and try the test again.

Data Log

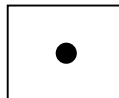
<u>name</u>	Visual		Auditory	
		cm		cm
		cm		cm
		cm		cm
		average		average
<u>partner's name</u>	Visual		Auditory	
		cm		cm
		cm		cm
		cm		cm
		average		average

How does your reaction time rate?

0-8 cm	exceptional
9-18 cm	average
19-26 cm	fair
27+ cm	retest

Try these other activities to test your eyes:

Dominant Eye - Cut holes the size of a quarter in a piece of cardboard. Holding the card at arm's length with both hands, fixate on an object which is at least 5 feet away through the hole (e.g., door knob or light switch.) Alternately, cover each eye. The eye that still sees the object is your dominant eye.



Blind Spot - Place 2X's 4 inches apart on a piece of cardboard. Look at the right X with the left eye only (close the right eye.) Start with the card at arm's length, then bring the card toward your nose as you focus on the right X. At some point the left X will disappear and then reappear as the card approaches your nose. When it disappears you've found your blind spot.



After Image - On a white piece of cardboard, place a dark object such as a coin or cutout of a rocket. Stare at the object intently for 10-15 seconds, then close your lids. You will see the dark object as white on a dark background for a few seconds. Reason: Retinal receptor cells fatigue if there is no movement of the eye, causing them to stop sending messages to the brain. The last image remains in the brain, so you can still "see" the object even with your eyes closed.

