

PowerPlay

PRE-VISIT Walk the Talk

5

Students learn that physical and mental activities can be improved with practice by repeatedly walking while reciting a poem.

TIME

One 30-minute
class period

M A T E R I A L S

PER STUDENT

- Science notebook

The Children’s Museum of Houston’s PowerPlay exhibit is designed to reinforce healthy behaviors and help young people discover new ways to become more physically active. By introducing students to new activities that require practice to master, this investigation will help students experience the differences between well-learned movements that seem almost automatic and new movements, which require

more concentration to do well. The activity should be completed before your class visits the Museum.

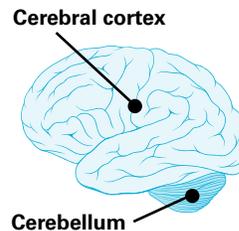
Many of the body’s movements happen without our having to think about them. Some of these automatic movements, such as breathing, beating of the heart, and movement of food through the digestive system, help to keep our body functioning properly. Other actions, such as reaching down to pick up a pencil or walking across the room, require us to make a conscious decision. Movements like these are called

voluntary, because we—or more specifically, the cerebral cortex, or “thinking” part of the brain—must make a decision to carry them out. The cerebral cortex chooses how to

proceed and then sends a signal out along a motor neuron (nerve cell that delivers signals from the brain and spinal cord to the muscles).

These decisions and communications take time. As you become skilled at a given movement, you gradually are able to perform it more

rapidly and smoothly than you could at first. Well-learned movements are guided by another part of the brain, called the cerebellum. Eventually, with practice, you can carry out some repetitive, rhythmic voluntary movements without much concentration at all; they become almost automatic. Examples might include walking, running, bicycling, jogging, skating or dancing. The cerebellum coordinates many of these movements, leaving the cerebral cortex free to carry out other jobs. Practice also improves performance in other kinds of tasks that require memory, such as playing a musical instrument or learning a list of names.



TEXAS ESSENTIAL KNOWLEDGE AND SKILLS (TEKS) OBJECTIVES

SCIENCE

3.2.A-F; 4.2.A-F; 5.2.A-F

Student uses scientific inquiry methods during laboratory and outdoor investigations.

3.4.A-B; 4.4.A-B; 5.4.A-B

Students know how to use a variety of tools, materials, equipment, and models to conduct science inquiry.

HEALTH

3.1.A; 4.1.D,F; 5.1.E

Students will recognize and explain ways to enhance and maintain health and recognize and perform behaviors that reduce health risk throughout their lifespan.

3.11.F; 4.11.B; 5.9.D-E

The student recognizes critical-thinking, decision-making, goal-setting, and problem solving skills for making health-promoting decisions.

ENGAGE

1. Conduct this activity in an area free of obstacles. Have students select and walk quietly with a partner, making a large circle around the perimeter of the space.
2. After a few moments, ask students if it was difficult to walk in the circle. Did they have to practice before they were able to do this?

EXPLORE

1. Ask each set of partners to walk again



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- in the circle. But this time, have one student in each pair tell a story or recite a poem (e.g., “Mary Had a Little Lamb” or “Twinkle, Twinkle Little Star”) as they walk together (2–3 minutes). Ask, *Was it difficult to walk and talk?*
2. Have students switch roles and repeat step 1, using the same story or poem.
 3. Next, change the walk for one partner in each pair. Have this person walk two steps forward (so that the heel of one foot is in contact with the toe of the other foot) and one step backward in a straight line, while reciting the same story or poem used before.
 4. Again, have students switch roles and repeat the previous step.
 5. Ask, *What was the difference between the two walking patterns? What role did balance have in the walk? Talking? Thinking about the steps?*
 5. Have students record their impressions of the investigation in their notebooks and draw conclusions about the results. For instance, they should explain which walk was easier, which was most difficult, and why this might be.

EXPLAIN

1. Lead a class discussion about students’ experiences with the two walking activities. Ask students to identify which elements of the assigned movements were most difficult, and why they think this is so. Emphasize that the act of simple walking has been “programmed” into students, so it seems almost like an automatic function. Thus, it was easy to tell a story or poem during “normal”

walking. However, it became harder to recite something when the “thinking” part of the brain was occupied with carrying out the new way of walking.

2. Ask students if they ever have watched a toddler learn to walk. Some students may even have seen video of their own first attempts to walk.
3. Ask students how they could improve their performance on this activity. Encourage them to consider if/how practicing might help.

ELABORATE

Over a period of several days, have students practice walking in a straight line while reciting the alphabet backwards. By the end of the experiment, students should observe an increase in speed and accuracy.

EVALUATE

Ask, *What situations can you think of in which it would be very important to be able to walk, run, ride a bicycle, etc., without having to pay attention to those movements?* Have each student write a short paragraph describing one such scenario.

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The activities described herein are intended for school-age children under direct supervision of adults. The authors, Baylor College of Medicine, the Children’s Museum of Houston and funders cannot be responsible for any accidents or injuries that may result from conduct of the activities, from not specifically following directions, or from ignoring cautions contained in the text.

Teacher Tips

Follow these guidelines when your students visit the PowerPlay exhibit at the Children's Museum of Houston (CMH).

- Students must wear tennis shoes.
 - The CMH's PowerPlay exhibit is on three levels, connected by the Power Tower. Level 2 of the Power Tower is on the main entry level of the Museum. It is suggested that teachers have a chaperone on each level of the Power Tower or have a chaperone accompany each group.
 - An elevator for handicapped children is available (CMH guide will have key). It is suggested that you inform CMH officials about any special needs your students may have before you arrive at the museum.
 - Before your visit, help students understand the difference between heart rate while resting and after exertion, (see "Activity 3. Heart Rate and Exercise").
 - Also before your visit, explain to students that they will rate (on a 1–10 scale) the amount of effort they expend during some of the activities in the exhibit. This is known as "perceived exertion rate."
 - Ask the CMH guide for a "Kid Card" (Power Tracker) for each student. To set up a card, each student will need the information below before visiting the Museum (see "Kid Card" video). Please make sure your students are ready to enter the following information (or have a chaperone assist).
 - Username (numbers and letters only)
 - Password
 - Male or female
 - Birthday (numerical date)
 - E-mail (optional)
- As a final step, have students measure their baseline heart rates.

IDEAS FOR TEACHERS WITHOUT ACCESS TO THE CHILDREN'S MUSEUM OF HOUSTON

- Incorporate any of the lessons into your regular curriculum.
- Plan a special "field day" at your school. Prior to the event, conduct the Pre-visit lessons. After the event, use the Post-visit lessons.
- Create a classroom fitness plan that provides one month of activities. Help students plan a calendar with different fitness activities for each day.
- Participate in the President's Challenge for fitness (www.presidentschallenge.org).

Exhibit Key

| | Cardiovascular | Strength | Flexibility | Balance |
|---|---|--|---|---|
| Power Tower: Climb, leap and jump in a 3-story climbing structure that takes you to other parts of PowerPlay. |  |  |  |  |
| Dance Mania: Listen to music and follow along with different dance moves. Record your heart rate after you play. |  |  | |  |
| Match My Moves: Capture images of your own body in action and follow the poses you've set through a sequence of quick movements, testing your endurance and raising your heart rate. |  | | | |
| Light Chase: Race around an interactive game board, while increasing your speed and raising your heart rate. |  | |  | |
| Jump It Up: Get your heart pumping as you jump over a glowing, virtual rope, which gets faster and faster the more you jump! |  |  | | |
| Blast Off: Crank hand pedals as fast as you can to race flying superheroes across the exhibit. |  |  | | |
| Adventure Course: Run through a course of climbing and crawling activities along padded, sloping surfaces! Slap each hand whacker along the way and record the level you achieve. | |  |  |  |
| Mt. Boulder: Face three challenges on a climbing wall and measure how far you've climbed, your grip strength, reach, flexibility and coordination. | |  |  | |
| Grip It: Measure your grip strength and record this measurement using your Kid Card. | |  | | |
| Power Course: Grab a scoot and use your upper body strength to push or pull yourself along this wheelchair accessible course. | |  | | |

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