**SATURDAY SCIENCE LESSON PLAN SPRING, 2010**

**WEEK FOUR**

**LEARNING OBJECTIVES**

* Students will count their walking step numbers while walking on grasses within 5 minutes.
* Students will count their walking step numbers while walking on cement within 5 minutes.
* Students will count their running step numbers while walking on grasses within 5 minus.
* Students will count their running step numbers while walking on cement within 5 minutes.
* Four groups will draw a graph on their posters by using their data within 90% accuracy.
* Students will do presentations based on their findings on their research questions.
* Students will use pedometer four times for four different exercises to count the number of steps they take.

**INDIANA STATE STANDARTS**[The Nature of Science and Technology: Scientific View and Inquiry (Option B)](http://www.indianastandardsresources.org/files/sci/ca_sci_3_1_1_b.pdf) **This is a classroom assessment covering The Nature of Science and Technology: Scientific View and Inquiry (Option B).** [The Nature of Science and Technology: Scientific View and Inquiry (Option A)](http://www.indianastandardsresources.org/files/sci/ca_sci_3_1_1_a.pdf) **This is a classroom assessment covering The Nature of Science and Technology: Scientific View and Inquiry (Option A).** [Color Burst](http://www.sciencenetlinks.com/lessons.cfm?DocID=117) **SOURCE: American Association for the Advancement of Science. In this Science NetLinks lesson, students gain experience in asking questions and conducting inquiries by exploring the separation of colors in water and other solvent. This lesson uses a technique called paper chromatography. This activity helps students gain experience in conducting simple investigations of their own while working in small groups.** [Properties of Air](http://www.sciencenetlinks.com/lessons.cfm?DocID=156) **SOURCE: American Association for the Advancement of Science. The purpose of this lesson, from Science NetLinks, is to demonstrate that air takes up space, and puts pressure, or pushes, on everything around it. To start the lesson students are asked to write an explanation of what air is. At various points in the lesson they are be asked to revisit their explanations and refine them based on the phenomena they have experienced in the lesson.** [Physical Health](http://www.sciencenetlinks.com/lessons.cfm?DocID=49) **SOURCE: American Association for the Advancement of Science. The purpose of this lesson, from Science NetLinks, is to identify how germs are spread, the diseases they can cause, and how hand washing can help prevent the spread of germs. In the lesson, students learn about some of the health habits that are essential for maintaining good health. Students engage in both online and hands on activities related to the topic of germs. Students learn that germs cause some, but not all diseases. They also learn the importance of hand washing for preventing the spread of germs, and thereby, the spread of disease.** [Sink It](http://www.sciencenetlinks.com/lessons.cfm?DocID=125) **SOURCE: American Association for the Advancement of Science. This Science NetLinks lesson is designed to develop students' understanding of sinking and floating. Students first classify a group of common objects by a characteristic of their own choosing. Then they reclassify the same group of objects by their predictions about whether each item will float or sink in water. As a group, they design an experiment to test their predictions (hypotheses).**

[Reaction Time](http://www.sciencenetlinks.com/Esheet.cfm?DocID=22) SOURCE: American Association for the Advancement of Science. This E-sheet, from a Science NetLinks lesson, has students work in pairs to complete two reaction time activities. They record data during each activity and analyze their results at the end. Click "Display Full Record" and see the Relation field for a link to the lesson this E-sheet supports.

[Falling](http://www.sciencenetlinks.com/lessons.cfm?DocID=158) SOURCE: American Association for the Advancement of Science. This Science NetLinks lesson introduces students to gravity as a force, focusing on the concept of falling. They discuss the role of "falling" in relation to everyday objects such as swings, see-saws, water fountains, and more.

### 3.1.

### Students, working collaboratively, carry out investigations. They question, observe, and make accurate measurements. Students increase their use of tools, record data in journals, and communicate results through chart, graph, written, and verbal forms.

Explain: Students will count their steps by using pedometers. While doing this, they will record their data on their journals in order to use in class discussion.

3.1.3

Keep and report records of investigations and observations using tools, such as journals, charts, graphs, and computers. (Core Standard)

Explain: Students will draw graphs for their projects. They will also count their steps by using pedometer and then they will record their findings.

3.1.4

Discuss the results of investigations and consider the explanations of others.

Explain: Students will discuss the results of their findings on walking exercise and they will consider the explanation of others.

3.1.5

Demonstrate the ability to work cooperatively while respecting the ideas of others and communicating one's own conclusions about findings. (Core Standard)

Explain: Students will work cooperatively on their projects with respect ideas of their friend.

3.2.3

Keep a notebook that describes observations and is understandable weeks or months later. (Core Standard)

Explain: Students will write the results of the activity on their notebooks.

3.2.4

Appropriately use simple tools such as clamps, rulers, scissors, hand lenses, and other technology, such as calculators and computers, to help solve problems. (Core Standard)

Explain: Students will use pedometer to count their steps to understand how many steps they take in ten minutes or the difference between numbers when they walk on grasses or on cement.

3.4.7

Explain that eating a variety of healthful foods and getting enough exercise and rest help people to stay healthy.

Explain: The teacher will explain what they need to be a fit kid and the importance of exercise for their health.

**MATERIALS**

* 5 pedometer
* 5 posters
* glue
* crayons
* stopwatch
* soccer ball
* jump rope

**Teacher Content Knowledge**

We exercise all the time without even thinking of it. Just being active, like when we walk or run around outside or play kickball at school, we kind of make exercise. What else counts as exercise? Playing sports, dancing, doing push-ups, walking, and even reaching down to touch your toes can be counted as exercises.

Exercise Makes Your Heart Happy

You may know that your [heart](http://kidshealth.org/kid/body/heart_noSW.html) is a muscle. It works hard, pumping blood every day of your life. You can help this important muscle get stronger by doing exercise.

Exercise Strengthens Muscles

Another kind of exercise can help make your [muscles](http://kidshealth.org/kid/body/muscles_noSW.html) stronger. Did you ever do a push-up or swing across the monkey bars at the playground? Those are exercises that can build strength. By using your muscles to do powerful things, you can make them stronger. For older teens and adults, this kind of workout can make muscles bigger, too

Exercise Makes You Flexible

Can you touch your toes easily without yelling ouch? Most kids are pretty flexible, which means that they can bend and stretch their bodies without much trouble. This kind of exercise often feels really good, like when you take a big stretch in the morning after waking up. Being flexible is having "full range of motion," which means you can move your arms and legs freely without feeling tightness or [pain](http://kidshealth.org/kid/talk/qa/pain.html).

Exercise Keeps the Balance

Food gives your body fuel in the form of calories, which are a kind of energy. Your body needs a certain amount of calories every day just to function, breathe, walk around, and do all the basic stuff. But if you're active, your body needs an extra measure of calories or energy. If you're not very active, your body won't need as many calories.

Whatever your calorie need is, if you eat enough to meet that need, your body [weight](http://kidshealth.org/kid/stay_healthy/fit/poll_weight.html) will stay about the same. If you eat more calories than your body needs, it may be stored as excess fat.

Exercise Makes You Feel Good

It feels good to have a strong, flexible body that can do all the activities you enjoy — like running, jumping, and playing with your friends. It's also fun to be good at something, like scoring a basket, hitting a home run, or perfecting a dive.

But you may not know that exercising can actually put you in a better mood. When you exercise, your brain releases chemical called endorphins, which may make you feel happier. It's just another reason why exercise is cool.

10 Main Reasons to do Exercise

* Exercise helps you build self-esteem and confidence
* Exercise acts like “Brain Fertilizer” to keep your brains healthy so you can think better!
* Exercise helps you avoid anxiety and depression!
* Exercise teaches you to be more active**,** instead of just sitting around watching TV and whining.
* Exercise helps you tune up yourcoordinationand keep your bodiesworking smoothly!
* Exercise helps you avoid deadly diseaseslike diabetes.
* Exercise helps you build healthy hearts!
* Exercise helps build strong bones!
* Exercise helps you build strong muscles!
* Exercise helps you set and reachgoals — and be winnersin life!
* Walking is also one of the exercise types. Walking can be enjoyed safely and there is a low risk of injury. It is also free and fun. We can learn what we have around our location. Additionally, we can get a chance to the nature around us when we walk; we can observe different types of bird or we can see tree blooming. It is not only fun but also healthy for our body. We can also count how many steps we are taking by using a small electronic device, **pedometer.**

**Description of lesson**

**EXPLORE**

**Activity 1**

* The teacher will take all students outside (School of Education garden) to make a physical activity.
* First, the instructor will ask them what they need to do to be a fit kid. The teacher expects students to answer as following; “doing exercise, walking, running, eating healthy food, making brain gym, and so on”
* Second, the teacher will ask them “Have you ever counted the number of steps you take in a day?”
* The instructor expect most students to say “No”
* And then the teacher will say them “They can count their steps by using a small device, pedometer”
* In the next step, the teacher will tell students to use a pedometer to count their steps while they walk. The teacher will explain them to count their steps when they walk on grasses and cement.
* The instructor will tell them to record their data on their notebooks. In doing this, they will need to set to pedometer to 0 and restart for each activity.
* Then, the teacher will tell them to follow the same steps for running on grass and cement.
* Finally, we will take students back to classroom to discuss their findings. While doing this, the instructor expects students to ask several questions such as; “Why we have taken more steps on cements/grasses?” or “Why boys have more steps than girls?”
* We will also ask some questions during the discussion such as “What kids of shoes/clothes to wear to be comfortable when we exercise?”, “What do we need to eat to get enough calories? “When we need to eat; before exercise or after exercise?” “Do you think walking is a fun activity?” “What do you see around when you walk?”

We will write their findings on the board to see differences while we discuss. We will do this activity after snack time until 11:30. We choose this activity because it is a fun way to do exercise and they will also collect data by doing this exercise. Furthermore, we have covered “How they can be a fit kid” for 4 weeks and this activity is kind of reminding previous classes.

**EXPLAIN**

At the first part of the class, the teacher will give students time to work on their projects. Students need time to finish their projects before the presentation. After evaluating the posters, we will suggest to each group to work on some missing parts of their papers. Four groups will draw a graph to transfer their data on the graph. One group will need to write the procedure and their conclusion on their poster.

After snack time, the teachers will take students to the garden to make a physical exercise. The exercise is basically counting steps while walking and running on grasses and cement. The students will record their findings while they do the exercise. The teacher will explain the following explanation based on students discussion and their questions.

Walking can be enjoyed safely and there is a low risk of injury. It is also free and fun. We can learn what we have around our location. Additionally, we can get a chance to the nature around us when we walk; we can observe different types of bird or we can see tree blooming. It is not only fun but also healthy for our body. Walking makes your heart happy, exercise makes you feel good, exercise keeps the balance.

After coming back to class, the results will discussed about their findings until 11:20. One of the teachers will write the results on the board.

They will make their presentation between 11:30 to the end of the class. The presentation will be about their projects. Parents will attend to the class in order to listen students’ presentations. The parents will go to each station to ask some questions and get some explanations from students. Students from different groups will also be able to ask questions to their peers.

**BREAK**

**ELABORATE**

In the first part of the class, the students will work on their projects. They will complete their projects after determining their missing parts on projects. Four groups, for example, have not drawn graph, yet. One other group has not written the procedure on their poster.

**EVALUATION/ASSESSMENT**

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| --- | --- | --- |
| **Assessment** | **Assessment format** | **Teacher Notes** |
| **Formative**  **assessment** | **Engage students in the process**  Some project groups need more time to work on their project. When they are getting information from internet or their group mates, the teacher, who works with group, will help to students exchange their ideas. While doing this, the teacher tries to understand how her students will use internet sources. Students show their ideas when they are discussing about their project data. Formative assessment should be seen as a dialogue between students and the teacher. |  |
| **Formative**  **assessment** | **Question and Answer in the Lesson/ Group Work**  Questions will be asked by teacher and students during group project. This method help students to understand their misconception and it also gives feedback for them. Questions will also used to motivate students during their work. Furthermore, if children parents have questions, they will ask them while visiting students’ project station. |  |
| **Formative**  **assessment** | **Assessing Oral Presentation Process**  Before students will present their projects, the teacher will give an idea how they can prepare their presentation. First of all, the teacher will mention why organization important and how they organize their presentation. This is one suggestion for them: the good oral reports summarize what you do during the activity, how they collect data, and what your data is. And then the reports draw to a conclusion with a summary and closing statement. Before presentation, students need to evaluate the data information they have collected and organize their thoughts. |  |
| **Formative**  **assessment** | **Projects:** The posters/ power points will be collected at the end of the class to evaluate until next week. The groups will be evaluated on the basis on their data collection, the sources they used, the results that they come with, and meeting deadlines.  Each student in the groups will be assessed on the basis of their contribution to the project. We will consider our observations; look at their ability to work in a group and independently.(we will use interviews along with the projects)  The report will be assessed based on several criteria including difficulty of projects, quality of diagrams/tables, statement of problem, clarity of explanation, logical development of the project. |  |

**References**

http://dc.doe.in.gov/Standards/AcademicStandards/StandardSearch.aspx

<http://www.activelivingresources.org/assets/kids_activity_english.pdf>

<http://kidshealth.org/kid/exercise/fit/work_it_out.html#>

http://www.wisegeek.com/how-does-a-pedometer-work.htm