Teacher Information
6th Grade Unit. Activity 5: “Rhythm of the Beat”

Suggested time period:
One - two 45-minute periods or one 90-minute block.

Concepts and skills to review with students before activity:
- Heart anatomy
- Electrical charge
- Starting up the computer, opening applications, and using the mouse.

Materials:
Computers
USB Links
EKG Sensors
EKG Electrodes (additional electrodes can be purchased from Pasco 1-800-772-8700, pack of 100 electrodes, cat# CI-6620, $15)

Optional extensions and substitutions:
- Have students act out a role play involving the emergency room scenario with the EKG traces.
- Invite a paramedic or EMT unit to bring in their defibrillator to show the students.
- Using the additional information below, have students identify the P-wave, QRS-complex, and T-wave from their own EKG traces.

Learning goals:
After completing this exercise students should be able to:
- Understand the purpose of an EKG.
- Explain that an EKG records the electrical activity of the heart.

Additional Resources:
Online course for nurses on reading basic EKG’s.
http://www.rnceus.com/ekg/ekgframe.html
EKG Library with 12-lead EKG’s of different heart conditions.
http://www.ecglibrary.com/ecghome.html

Additional background information for teachers:
The electrical charges generated by the different parts of the heart cause the pattern of the EKG.

P wave – The P wave shows the electrical stimulation from the SA node that causes the atria to contract.
QRS complex – The QRS complex shows the electrical stimulation from the AV node that causes the ventricles to contract.
**T wave** – The T wave shows the return of the heart to its electrical state before the next cycle of atrial contraction.

There are also intervals or distances between waves in the EKG. These represent intervals of time.

**P-R interval** – time that it takes for electrical impulse to travel through the AV node

**Q-T interval** – time that it takes for electrical impulse to cause ventricles to contract and then return to beginning state