Sequencing – April 20th 2016

We learned about algorithms in the April 9th, 2016 Looney Challenge. We learned that an algorithm is a set of instructions that tell a computer what to do. Within an algorithm is a **sequence.** A sequence is important to computer programming and, in basic terms, is the set of instructions in a specific order within the algorithm. Sequencing is one of three constructs used to design an algorithm; the other two are selection and iteration (http://www.bbc.co.uk/education/guides/zsf8d2p/revision). The following definition explains sequencing:

" A sequence is one of the basic logic structures in computer programming. In a sequence structure, an action, or event, leads to the next ordered action in a predetermined order. The sequence can contain any number of actions, but no actions can be skipped in the sequence. Once running, the program must perform each action in order without skipping any. For example, Making Pizza; base-->tomato sauce-->cheese-->bake" (http://irisiri.weebly.com/sequence-selection-and-iteration.html)

Need to give your students a computer programming refresher? If you do, ask your students to watch the "What is Programming" video form study.com, http://study.com/academy/lesson/what-is-programming-definition-introduction-for-beginning-programmers.html. You may need to register as a teacher to watch the full video (the registration is free). A second video, "5 Basic Elements of Programming," is a little longer, but also provides more background and definitions, http://study.com/academy/lesson/5-basic-elements-of-programming.html.

Let's Get Started

Select an option or you may do all three! Each option is worth 10 points, but if you choose do to more than one option we'll give you 5 extra points!

Option 1 - Kodable Fuzz Family Frenzy. This option is unplugged and can be used for all age groups. The activity was developed by Code.org, http://www.code.org, to teach students about algorithms and sequencing. Your students will learn that the computer (in this activity the person following the instructions is the computer) has to have exact instructions or the program will not work or do what is expected.

1. Go to http://resources.kodable.com/fuzzFamilyFrenzy.pdf. Print as many copies of page 1 as you need. Page 2 is a set of instructions for teachers.
2. Follow the instructions and have fun with the activity!
3. Send us an email, following the "How to earn points" section below.

Option 2 – Origami is Like Programming. This option is also unplugged and can be adapted to all age groups and experience levels.

1. Go to the cs10kcommunity.org link for an activity to teach sequencing using origami, https://cs10kcommunity.org/blog/origami-is-like-programming….
2. Follow the step-by-step details. When you choose the origami sheets, select an age or experience appropriate shape (e.g. swan, star, etc.)
3. Send us an email, following the "How to earn points" section below.

Option 3 – Artist. This option is an Hour of Code tutorial found on the Code.org website. You will need internet access. The activity, or tutorial, will allow students to draw pictures and designs using programming principals, particularly sequencing. Students can be creative and have fun while learning coding at the same time!

1. Go to https://studio.code.org/s/artist/stage/1/puzzle/1 to find the website. For teacher instructions, please click on this link, https://code.org/hourofcode/artist. We recommend watching the video and reading the information for teachers.
2. Depending on the age group, you may have to spend a few minutes teaching your students about angles. Draw the angles on the white board for students to refer to as they code and draw.
3. After the Hour of Code, your students may print the Hour of Code Certificate.
4. Send us an email, following the "How to earn points" section below.

** Another idea to help teach sequencing is to ask students write instructions to make a peanut butter and jelly sandwich. Form groups of 2-3 students. Select one student to be the computer (or robot). The other two students are the programmers.   Ask the programmers to write instructions, in sequence, about how to make a peanut butter and jelly sandwich. When the instructions are complete the programmers "run" with the computer/robot. The robot follows the instructions exactly. Programmer may need to "de-bug" the code. You bring the ingredients to class and use real bread, peanut butter and jelly for the activity, or draw the pieces on paper and cut out bread slices, peanut butter, jelly (all the parts, including a knife for spreading the peanut butter). Another idea is to ask students to make S'Mores.

How to earn points:

1) If you haven't registered your class, please go to cs.montana.edu/looney-challenge and click on the "Register for Looney Challenges" link.

2) Discuss with your class the difficulty of the activity. What did they learn? How difficult was the activity? Do they understand the concept?

3) Briefly, in a couple of sentences, describe in your email what happened during the activity? Did your students understand the concept(s)? Email your description to looneychallenges@gmail.com.

4) If you want to attach an example, photographs of students working, or video of student's outcomes, please send them as an attachment.

5) We will send you a confirmation and provide you your point total for the activity and your total points for Looney Challenges.

For questions, please contact Sharlyn Izurieta, 994-4794 or send an email to looneychallenges@gmail.com

Deadline is June 30, 2015.