

Teacher Guide for ASK

September 2013: Computers

This guide was prepared by Betty Lou Askin, a retired educator who lives in Toronto, Ontario.

Objectives:

- To learn about the workings of a computer.
- To understand what a computer can and cannot do.
- To appreciate the use of a computer.

Pre-reading:

- Ask the students to look at the cover and Contents pages of the magazine. Discuss the types of information that they think they will see and learn about in this issue.
- Have the students develop a **KWL Chart**. What I Know, What I Want to Know and What I Learned.

Scoops:

Daisy Finds a Dino

- When Daisy was young, what did she find?
- Tell what her discovery became known as years later.
- Why has Daisy continued to be motivated?

Hair Conditioning

- Why is fur or hair important to animals?
- Describe elephant hair.
- Explain how their hair helps them.
- Tell how they also try to keep cool.

Those Amazing Monarchs

- Why are monarch butterflies amazing given that they live in North America?
- Describe the scientific experiment.

Make More Garbage

- Why is Oslo different regarding their garbage?
- Explain why you think that this is a way for the future.

Nestor's Dock

- Why are the machines talking?
- Why are the friends worried?

A Computer Looks at Badly Drawn Bunnies

Reading for information:

- Why do you think that your friend could recognize your drawing of a rabbit?
- Explain why you think that a computer might not know your drawing was a rabbit.
- In a paragraph, describe the experiment that scientists are conducting at Brown University.
- Explain how the computer learned to recognize drawings.
- Explain why computers are very bad when it comes to recognizing new images.
- Why are humans so much better at recognizing a variety of images of the same image?

- Explain what scientists hope that one day computers will be able to accomplish.

How Do Computers Work?

Questions to consider:

- What is computer hardware?
- Why is software needed?
- Explain why you play an important role.
- What are electric charges on the computer?
- What are computer chips?

How to Talk to a Computer

- What is a binary code?
- If possible, make use of the cards and let the students send messages to each other.

How Does An Email Get to Your House?

Ideas to help with the content:

- What happens when you type an email?
- Describe what happens when you send an email.
- Explain how routers work.
- Why is a packet important on a computer?
- Explain why web pages and movies are different.

Bit and Byte Go Fishing with Scratch

Questions to use with a discussion:

- What is Scratch?
- Explain how it works.
- Let the students work in groups. Ask them to describe what can be done with Scratch. Or, to make a list of the things that can be done with Scratch. Let them share their findings with their classmates.
- Explain why it is okay with Scratch if you copy someone else's work.

Ada and the Thinking Machines

Questions to use as seat work after an initial reading of the text:

- Why was Annabella's marriage not successful?
- Tell why Annabella was determined to raise Ada in a strict fashion.
- Describe Ada's education.
- Who were "the Furies"?
- Why did Ada believe that she was a genius?
- What was Flyology?
- What was the Difference Engine?
- Explain the Analytical Machine.
- Describe the "Silver Dancer".
- Explain why you think that Babbage called Ada "The Enchantress of Numbers".
- Explain how Ada became "a completely professional person".
- Explain why we could call Ada a woman ahead of her time.

EEK! There's a Bug in My Computer!

Use these questions to focus on the reading:

- What was the Mark 11?
- Describe how the Mark 11 worked.
- Tell what happened in 1947 with Hopper and her team.
- Explain how Hopper became famous.

Marvin and Friends

- Explain why Plush thought that she was helping Marvin.
- Why did Marvin not appreciate her help?
- How was Marvin going to solve his problem?

Culminating Activities:

- If the **KWL Chart** was used throughout the work with this issue of ASK, complete the final section-What I Learned. This final section can also be completed after the reading of each article.
- Choose 5 things that you have learned about computers. Write a short paragraph about each of your topics using information from this magazine.