Technology Module Robots

Teacher Name: Dewey **Date: September 2016**

School Site: Curran **Unit: Technology - Robots**

NGSS Covered:

K-2-ETS1-1. Ask questions, make observations and gather information about a situation people want to change to define a simple problem that can be solved through the development of anew or improved object or tool.

Connections to Engineering, Technology and Applications of Science: Influence if Engineering, Technology, and Science on Society and the Natural World: People depend on various technologies in their lives; human life would be very different without technology,

CCSS ELA Covered:

RF.K1. Demonstrate understanding of the organization and basic features of print

RF.K.1a. Follows words from left to right, top to bottom, and page by page

RF.K.1c. Understand that words are separated by spaces in print

RI.K.1. With prompting and support, ask & answer questions about the key details of the text

RI.K.2 With prompting & support, identify the main topic &retell key details of a text

RI.K.5. Identify the front cover, back cover, and title page of book

RI.K.7. With prompting and support, describe the relationship between illustrations and the text in which they appear

RI.K.10. Actively engage in group reading activities with purpose and understanding

RL.K.1. With prompting & support, ask & answer questions about key details of a text

RL.K.6. With prompting and support, name the author and illustrator of a story and define the role of each in telling the story

RL.K.10. Actively engage in group reading activities with purpose and understanding

W.K.2. Use a combination of drawing, dictation and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic

SL.K1. Participate in collaborative conversations

SL.K.1a. Follow agreed upon rules for discussions

SL.K.1b. Continue a conversation through multiple exchanges

SL.K.2. Confirm understanding of a text read aloud or information presented orally or through other media by asking & answering questions about key details and requesting clarification if something is not understood.

SL.K.6. Speak audibly and express thoughts, feelings, and ideas clearly

CCSS Mathematics Covered:

K.CC.4a. When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object

K.MD.1. Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object

K.MD.2. Directly compare two objects with a measurable attribute in common, to see which object has more of/less of the attribute and describe the difference.

K.G.2. Correctly name shapes regardless of their orientations or overall size

K.G.3. Identify shapes as two-dimensional or three-dimensional

Note: This module will take 5 to 7 days to complete and will lead to Magnets/Push & Pull

Understanding by Design NGSS Unit Plan

Stage 1: Desired Results

Understand	**Essential Question(s)**
See connection of Technology and Engineering with Science	**In what ways do humans create, use, and change (modify) technologies?** **What is technology?**

Stage 2: Evidence/Assess

Know	**Do**
Technology is created, used and modified by humans **Vocabulary:** **technology: tools that help humans **robot: amazing machines that work on their own **humanoid: looking, acting like a person/human **hydraulic: operated by a fluid under pressure **programed: given a list of instructions to perform **sensor: a device that gives a robot information about its surroundings	Invent a robot that can do a particular job or solve a problem

Stage 3: Learning Plan

How

Engage:

- ***Draw a robot (pre assessment) - TK draw; Late Bird draw and label/write what they know about robots**
- ***What is technology? Meaning**
- ***watch Discovery Ed video – The Fixities (The Robot)**
- ***Read <u>Robots Everywhere</u> (Sue Fliess)**
- ***Tree Map – Robots: Can (verbs) & Are (adjectives/descriptors) - continue to add information as we explore**

Explore:

1. **Discovery Ed – pictures of Robot Assembly at Ford**
2. **BeeBots – programming**
3. ***Go Noodle* (Robot Dance)**
4. **Robot TLC – use for counting, comparing, story telling**
5. **Robots (level T) Reading A to Z - projectable**

Explain:

1.Read Robots (Discover Science) in school library
2.Read – Boy+ Bot (Ame Dyckman) Compare/Contrast – inventor vs mom& dad; boy/bot did what to feel better
3.Close Read - Discovery Ed Robot Flies like a Jellyfish
4.Read Sammy and the Robots (Ian Whybrow) – different types/jobs of robots through fiction
5.Robots (level T) Reading A to Z - projectable
6.Informational text on different types of Robots (in school library)
7.Careers – Discovery ED videos; Robotic Technician; Robotics Engineer
8.View "The Fixities" on Discovery Ed again with discussion and review for info

Elaborate:

1. **Draw a robot using geometric shapes (stencils, pattern block stickers). Count the number of shapes used**
2. **Build the robot using above illustration/drawing. Measure the shape robot (with teacher) using a paper clip as measuring tool. Discuss height, weight and length. Also 2-D vs 3-D.**
3. **Reading A to Z Robots All Around 5 day shared reading**
4. ***Go Noodle* (Read Like a Robot)**
5. **Go Noodle – Robot Dance (How would you change the dance with what you now know about robots?)**

Evaluate:

1. **Create/invent a robot for a particular job**
   Read – The Cleanup Surprise (Christine Loomis)
2. **Make a presentation of robot to peers. TK make a verbal presentation to be videotaped. Late Birds make a computer presentation (Rubric)**

Stage 4: Transfer

Knowledge Transfer

This module will provide the prior knowledge as we move into other science modules using the technology and engineering piece

Additional Materials:

Language Arts

Wodney Wat's Wobat (Helen Lester) – beginning sounds, sound of "r", size of print is size of sound read

RF.K1. Demonstrate understanding of the organization and basic features of print

RF.K.1d. Recognize and name all upper and lowercase letters

RK.K.2. Demonstrate understanding of spoken words, syllables and sounds (phonemes)

Rolie Polie Olie (William Joyce) – rhyming, print concepts (bold words on page), round/curve/curl

RF.K1. Demonstrate understanding of the organization and basic features of print

RF.K.2a. Recognize and produce rhyming words

The Three Little Aliens and the Big Bad Robot (Margaret McNamara & Mark Fearing) – question mark, exclamation mark, good robot vs bad robot (compare contrast), planets

RF.K1 Demonstrate understanding of the organization and basic features of print

L.K.1d. Understand & use questions words

L.K.2b. Recognize and name end mark punctuation

Rude Robot (Reading A to Z)

We Build a Robot (Reading A to Z)

Math

Use robots for story problems - robot counters (made with stickers)

K.OA.2. Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem. (TK within 5)

Counting robots in books, with robot counters (made from stickers, etc.)

K.CC1. Count to 100 by ones and by tens

K.CC.2. Count forward beginning from a given number within the known sequence

Collect data of types of work robots do; sort pictures of different robots and (LB) graph results of sort; tally & bar

K.MD.3 Classify objects into given categories; count the numbers of objects in each category and sort the categories by count