

Robots

Activity Plans
November 2019

Science

Provided by Tugba Aker from Turkey

STEM ACTIVITY PLAN Sinking Ship

Problem: Standing on the water surface, How the durability of boats? Can we measure FOIL, COIN ?

Materials: PAPER, ALIMINUM

ASSOCIATED EARNINGS / COURSES: Game, art activity, music, science and nature.

K1: Gives attention to the object / state / event.

1. Focuses on the object / state / event that needs attention
2. Asks questions about the object / situation / event that attracts attention.

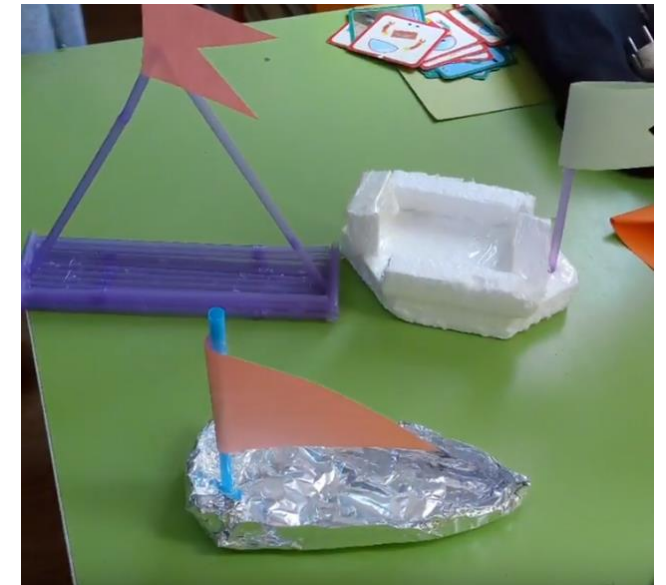
Tells the position of the object in space.

Gain 8: G: distinguishes the material from which the object / assets are made and compares.

Gain 9: G: Sorts objects / assets by weight

SKILLS EXPECTED TO BE GAINED: Searching for solutions to the given problem, Creativity, Curiosity ability to solve problem, cause and effect relationship, research, non-standard measurement Ability to learn by producing by experiment.

EVENT LINK: <https://youtu.be/iHxkZTP1z5g>



Technology

Activity Title: The Moving Robot by Charmaine Attard from Malta

Theme: Robots

Month: November

Aim: Making a Robot with blocks that moves from Point A to Point B while using coding vocabulary such as forward, backwards, left and right.

Resources/Materials needed: Blocks (any type as long as students can make them move), Interactive Board or Tablet, Cameras/video cameras for recording.



Activity:

Step 1: Introduction: Read/Listen to the story “NO-BOT: The Robot with no Bottom” by Sue Hendra (link to story here <https://www.youtube.com/watch?v=WEwhYANq7y8>) and discuss how the robot was able to move from one place to another.

Step 2: Present children with your blocks all jumbled up. Ask children questions on how they would build a robot and provide students with a tablet or interactive board to draw and design their robots.

Step 3: Using blocks (such as Lego) let them make a robot that can move from Point A to Point B

Step 4: Build simple mazes using other blocks to make the robot move from Point A to Point B and encourage students to use vocabulary such as forward, backwards, left, right (in any language that is comfortable for them).

Step 5: Let students use cameras to take pictures or record videos of their moving robots.

Step 6: Evaluate the robots done. What went right, wrong and how it can be improved.

This is the link for a short example of this activity: <https://youtu.be/cony-4ZYz7Q>

Extra Material: You can use Lego we do: <https://www.youtube.com/watch?v=TO2jaCrUrMg>



Engineering

Activity Title ENGINEERING-ROBOT WORK by Neriman Temizel - Turkey

Theme: Robots

Month:November

Aim: Objective: to enable them to communicate their ideas and thoughts, to put forth a product using their cooperation and communication skills, to make a presentation of the product, etc.

Resources/Materials needed: battery, battery compartment, motor, bottle caps, toothpick, wire, silicone gun, piece of wood

Activity:

Step 1: Introduction: All materials are placed in front of the children. 'what can we do with these?' he told reporters. Questions and Answers continue until the Robot finds the answer.

Step 2: bottle caps are distributed to children, with teacher support and silicone gun, bottle caps are attached. Children are given instructions to assemble the pieces.

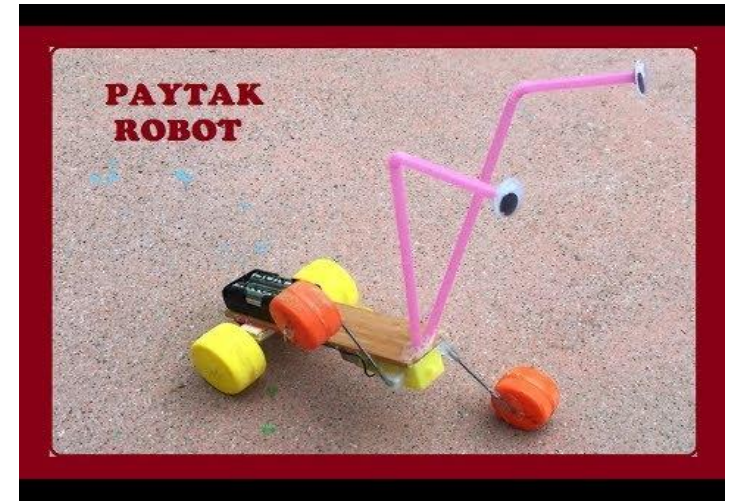
Step 3: the materials are correctly combined under the guidance of the children and the teacher, as in the video.

Video Link: <https://www.youtube.com/watch?v=gsPuc3fyjll>

Step 4: Children are asked the following questions::

- 1-How many cylinder materials were used in this robot?
- 2-What is the power source that enables the robot to progress?
- 3-What else can we use instead of bottle caps?

Step 5: the teacher uploads a video of the children to the Twinspace



Arts

Activity Title: The Drawing Robot by Barbara Trivelli from Italy

Theme: Robots Month: November

Aim: Learning how to build a robot and make it draw: crafting activity, abstract art.

Resources/Materials needed: Paper cap, felt tip pens, rubber band, vibrating object (such as a toothbrush) or battery and cables and motor, scotch tape, recycled materials

Subject Arts (and technology)

Activity

Step 1. Discuss with pupils on how Robots can help us to create art

Step 2. Present children a simple motor and all the other materials

Step 3. Brainstorming: how can we build a drawing robot?

Step 4: Build the Robot

Step 5. Let the robot draw

Step 6. Test the robot on different surfaces or levels

Step 7. Evaluation: Did the robot draw? What kind of drawings did it make? Could we control the movement? Why?



These are the links for a short example of this activity: <https://www.youtube.com/watch?v=YeJjv02xiP8>

<https://youtu.be/DYmgvr0htqM>

Maths

Activity title: Binary Bracelets, by Margarida Barbieri from Portugal

Theme: Robots

Month: November

Aim: Code the first letter of the name in binary code and use the code to make a bracelet

Resources/materials needed: Small wood or plastic beads with different colors; elastic cord

Activity

Introduction: How to read binary? Discussion with children about this topic.

Additional information is available:

<https://jdaniel4smom.com/2017/07/abcs-of-how-to-read-binary-stem-activity-printable.html>

Step 1: Children use the binary code to translate the first letter of the name to binary code!

Step 2: Children chose 2 different colors beads and use the code to make the bracelet.

Step 3: Let children take pictures and share it with others, for example “guess my name”!!!

Here are are some examples of bracelets I’ve done with children a few years



U Unshugged

Name: _____ Date: _____

Binary Bracelets

Binary Decoder Key

A	■□■□ ■□■□	N	■□■□ □□■□
B	■□■□ ■□■□	O	■□■□ □□■□
C	■□■□ ■□■□	P	■□■□ ■□■□
D	■□■□ ■□■□	Q	■□■□ ■□■□
E	■□■□ ■□■□	R	■□■□ ■□■□
F	■□■□ ■□■□	S	■□■□ ■□■□
G	■□■□ ■□■□	T	■□■□ ■□■□
H	■□■□ □□■□	U	■□■□ ■□■□
I	■□■□ □□■□	V	■□■□ ■□■□
J	■□■□ □□■□	W	■□■□ ■□■□
K	■□■□ □□■□	X	■□■□ □□■□
L	■□■□ □□■□	Y	■□■□ □□■□
M	■□■□ □□■□	Z	■□■□ □□■□

Find the first letter of your first name.
Fill in the squares of the bracelet below to match the pattern of the squares next to the letter that you found.
Cut the bracelet out and tape it around your wrist to wear it!

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December 1st 2014