

@CSTANJ

@CS4NJ

#CSPDWeek2026

#CompSciNJ

@csteachersorg



New Jersey CSPDWeek

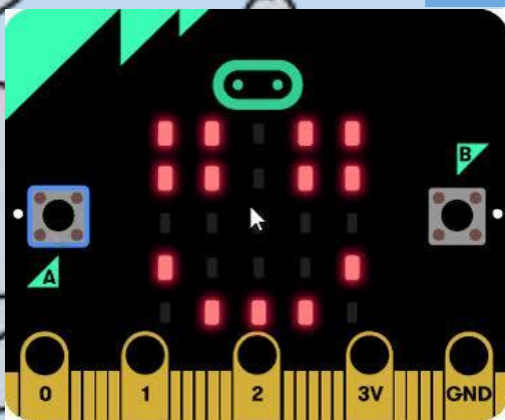
This material is based upon work supported by the National Science Foundation under Award No. 2607763.

micro: bit

Overview

**Practical
Applications for
21st Century
Learning**

CS PD Week 2026
Erin Wicklund



HELLO!

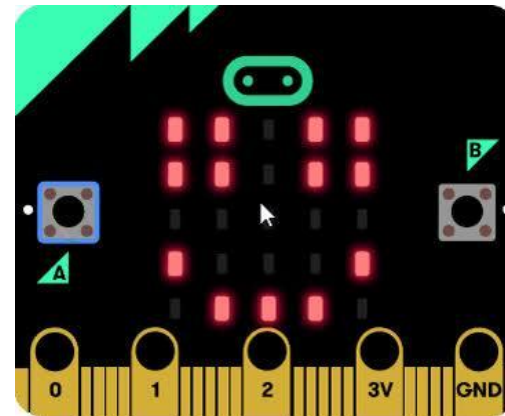
What grades
and / or subject
areas do you
teach?



Have any of you used
a micro: bit before?

In your classroom?

At a PD Session?



What we will do in this session:



- ☒ Learn the basics of how a micro: bit works
- ☒ Gain insight into some simple applications in various subject areas
- ☒ Share ideas
- ☒ Program a micro:bit to create Name Tag
- ☒ Program and play a game of Rock, Paper, Scissors



Why use this in your classroom?

- ☒ Interactive and pocket-sized computer
- ☒ Inexpensive and versatile
- ☒ Add code to personalize and bring your micro: bit to life, no software to download!

micro: bit is very versatile! It can be used in many subject areas such

**Computer
Science &
AI Learning**

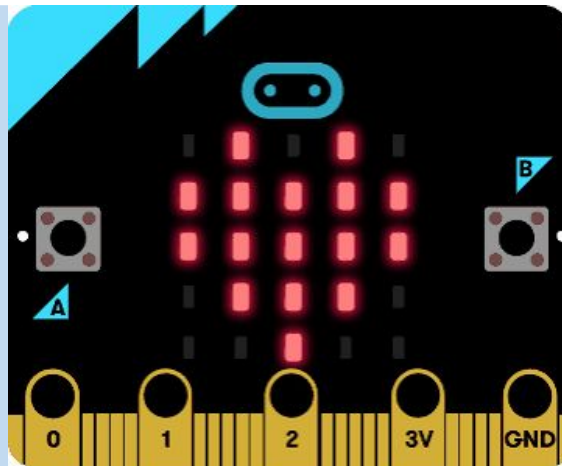
**Social
Studies**

**Social
Emotional
Learning**

Science

Math

Music



Versatility

-

as an
educational



The micro:bit can be programmed to display text, numbers, and simple animations, making it a great tool for learning basic coding.

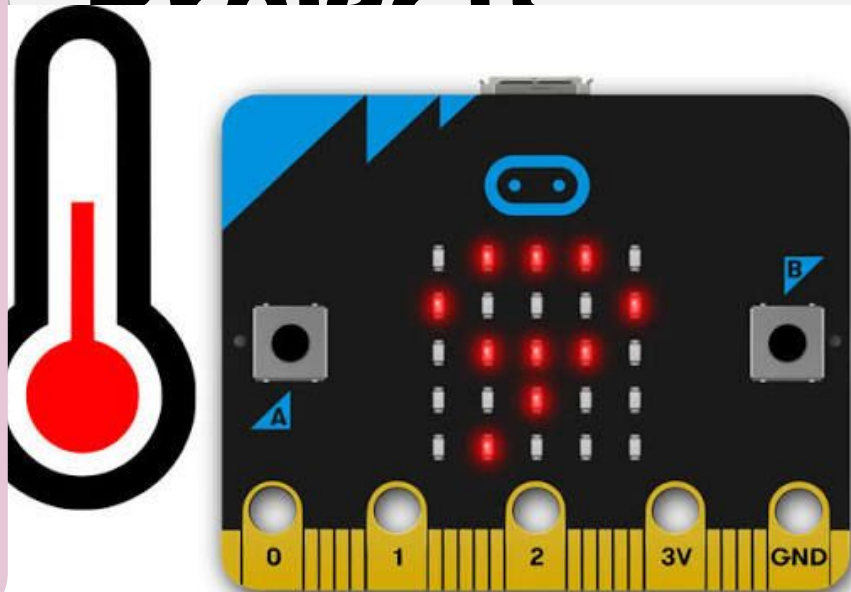
Example: a digital dice that generates random numbers when shaken

Versatility

-

for Science

Projects



With its sensors, the micro:bit can be used to collect data for science experiments.

Example: Using the temperature sensor to monitor and record temperature changes over time.

Versatility

–



micro: bit can be

integrated with motors

and other components to

build simple robots.

Example: a micro:bit

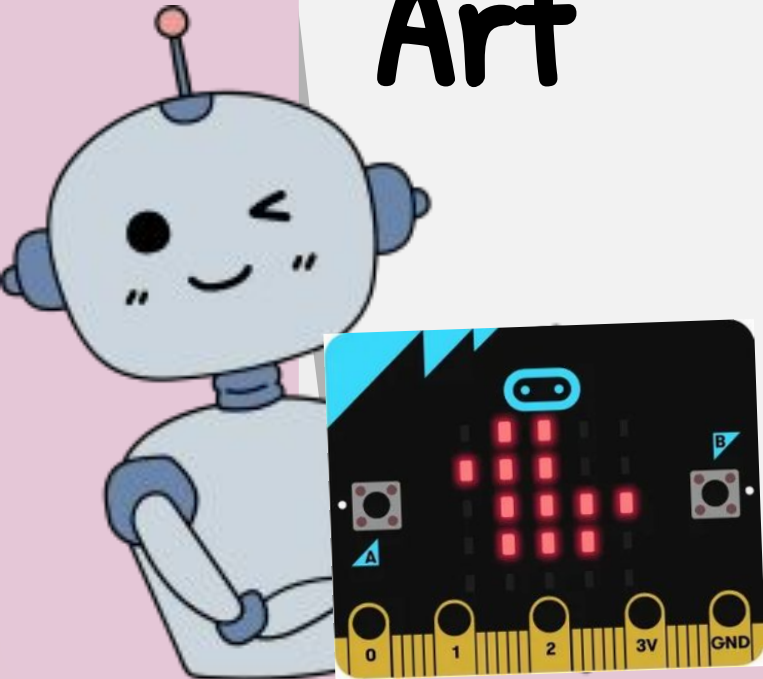
controlled car that moves

based on button pushes or tilt
directions.

Versatility

-

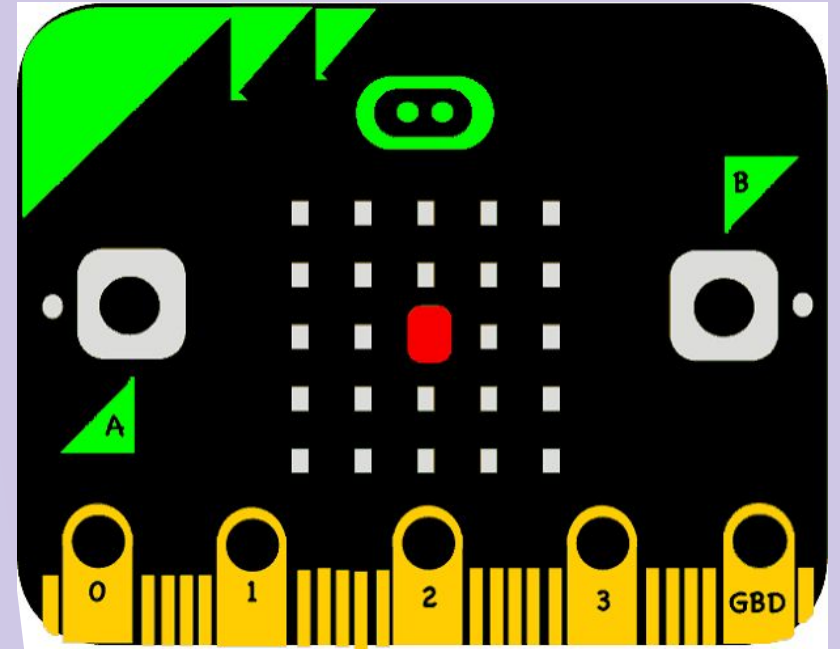
Music and Art



Students can create
digital art and musical
compositions.

Example: students can create a
simple touch keyboard or guitar.
Play different melodies when
buttons are pushed. You can also
use the accelerometer to trigger
sounds when the micro: bit is
shaken

Now, let's
learn how
they work !



Just like, a robot.. micro:bits can sense, think, and act

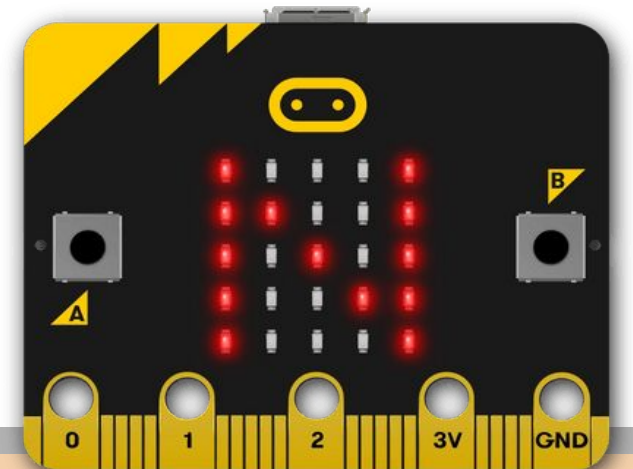
Sense: light, movement, sound, magnetic field



Think:

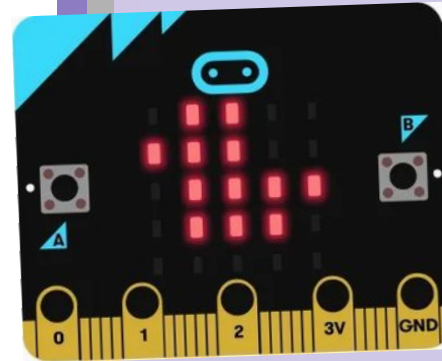


Act:

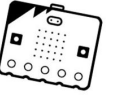


Experiment with your device now.

Use the worksheet to guide you.



Meet your micro: bit



*First power on micro:bit
(plugging into a computer or
battery pack).*

**When I do
this...
(Inputs)**

**This
happens...
(Outputs)**

Press button A

Press button B

*Press buttons A and B
together (in a bright
environment)*

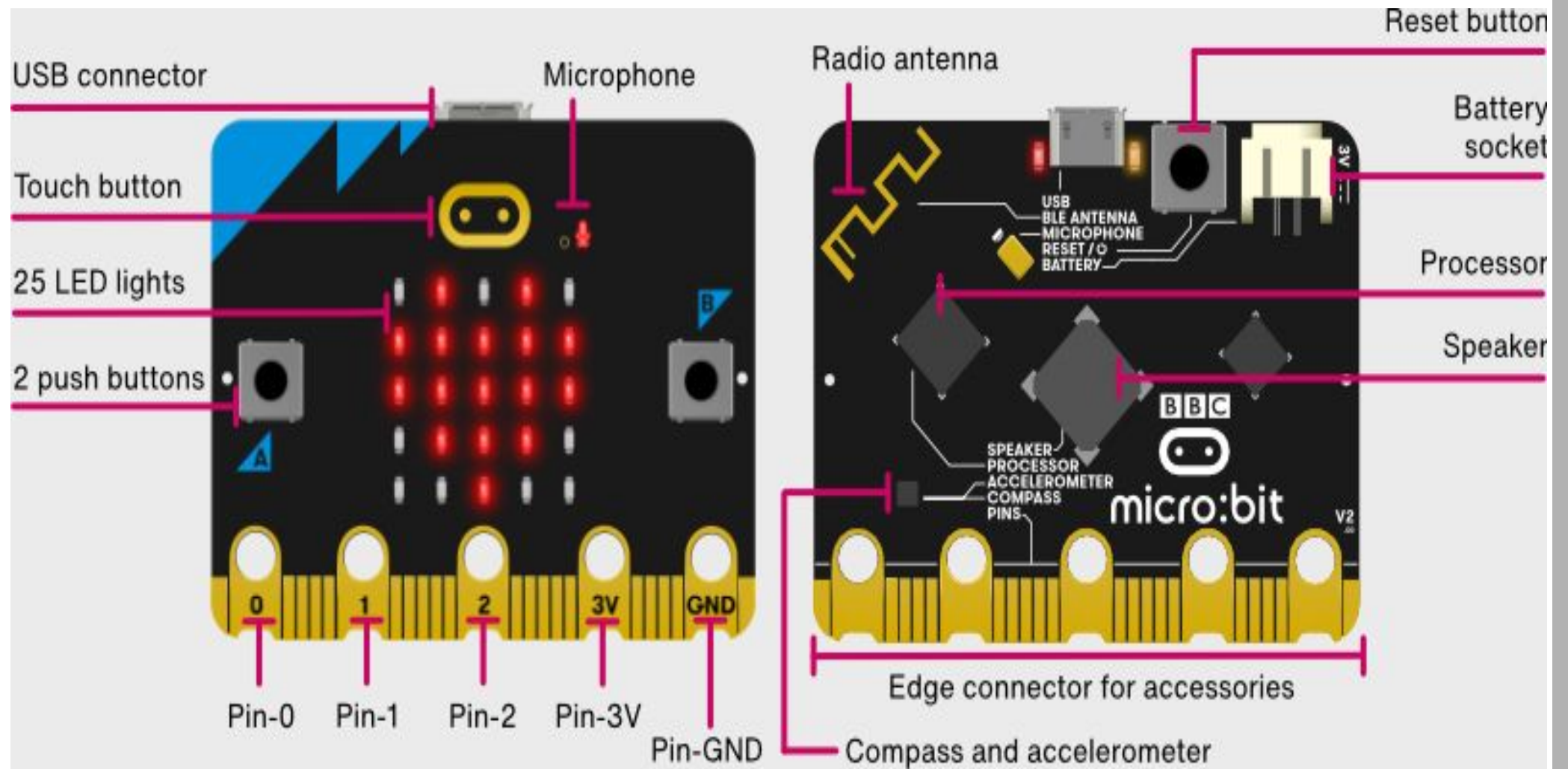
*Press buttons A and B
together (in a dark
environment)*

Shake the micro:bit

did you discover a different input?

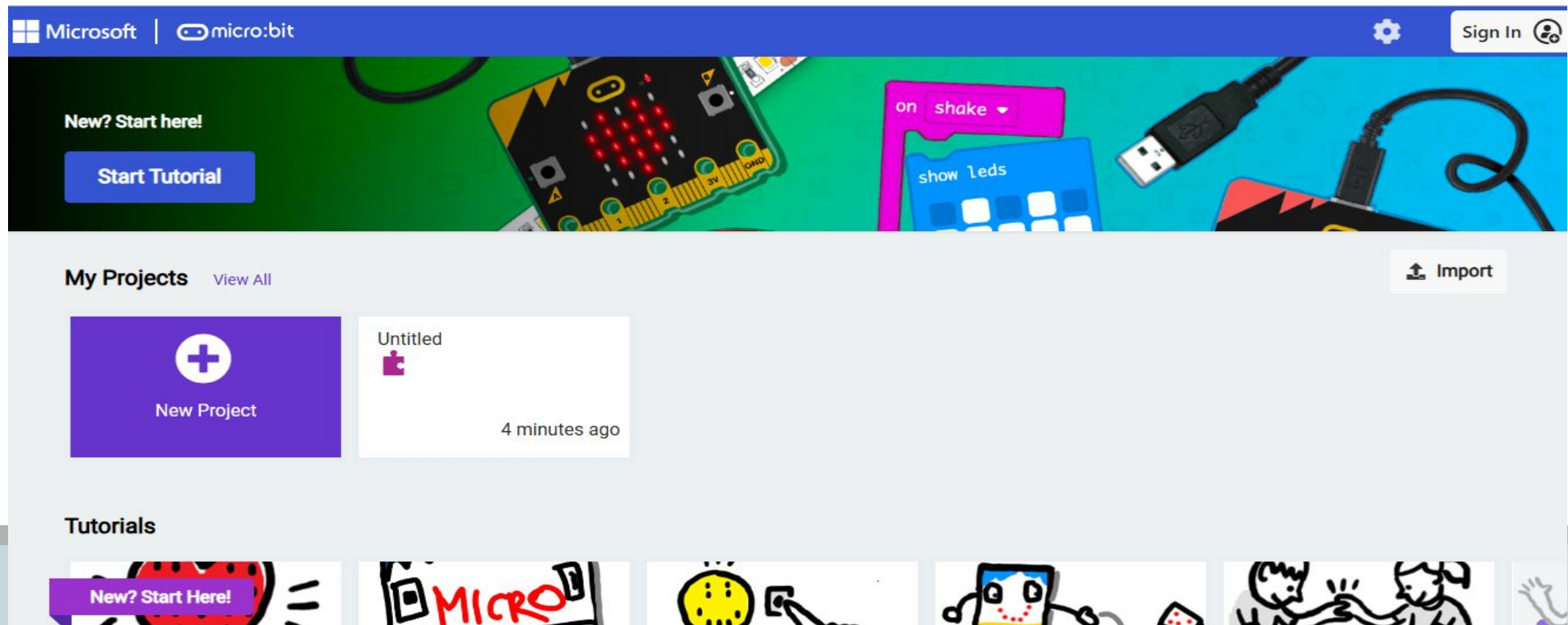
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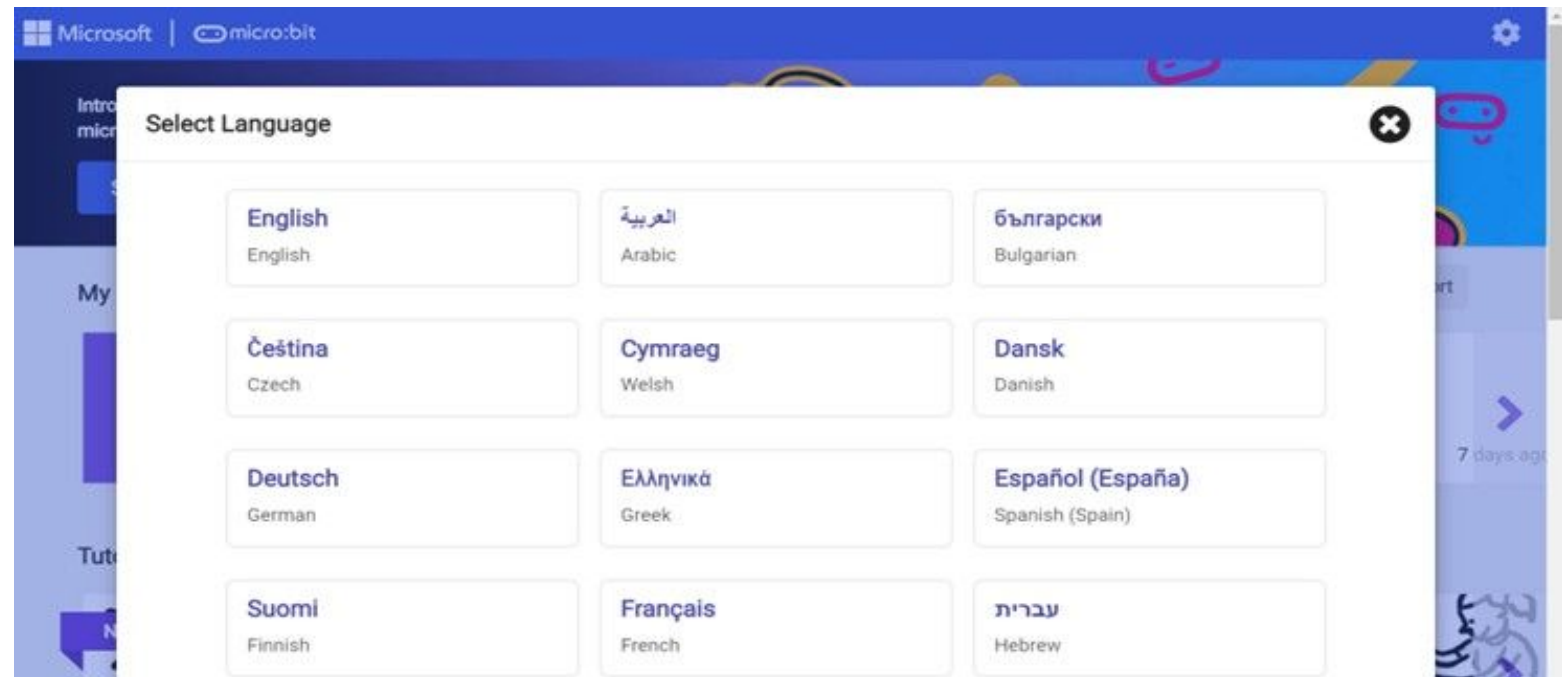
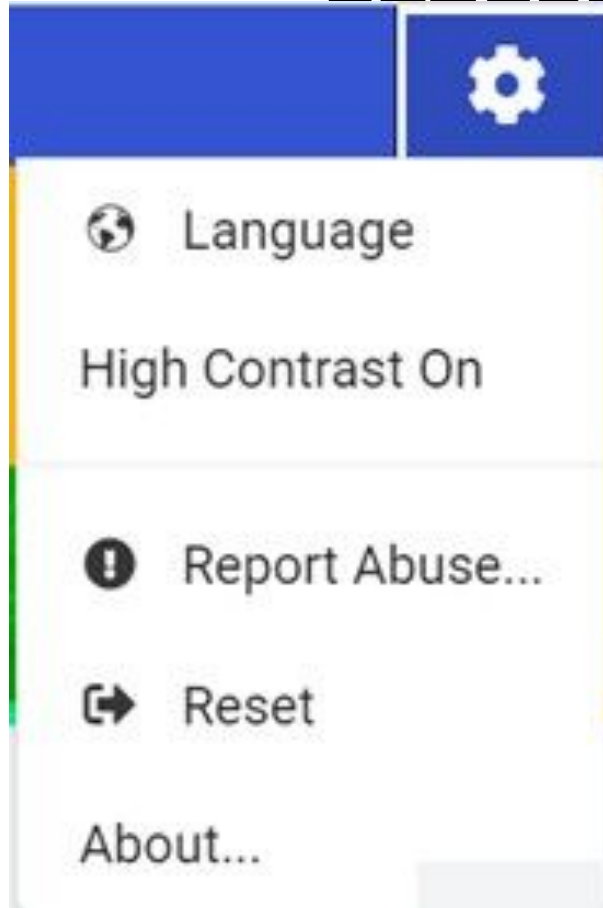
Code your micro: bit online using the Microsoft Make Code website:

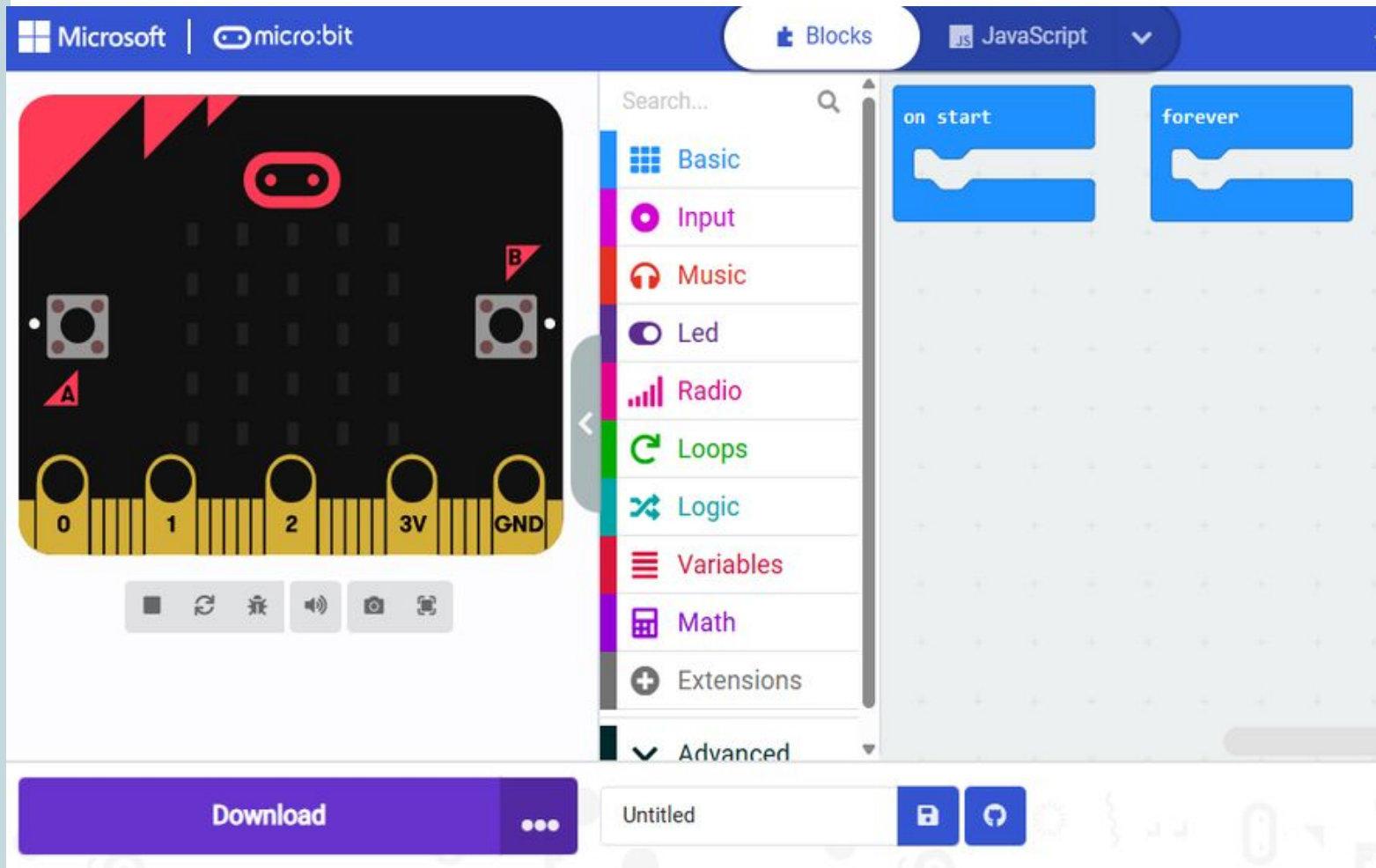
www.makecode.microbit.org



Multi-lingual - code in over 30

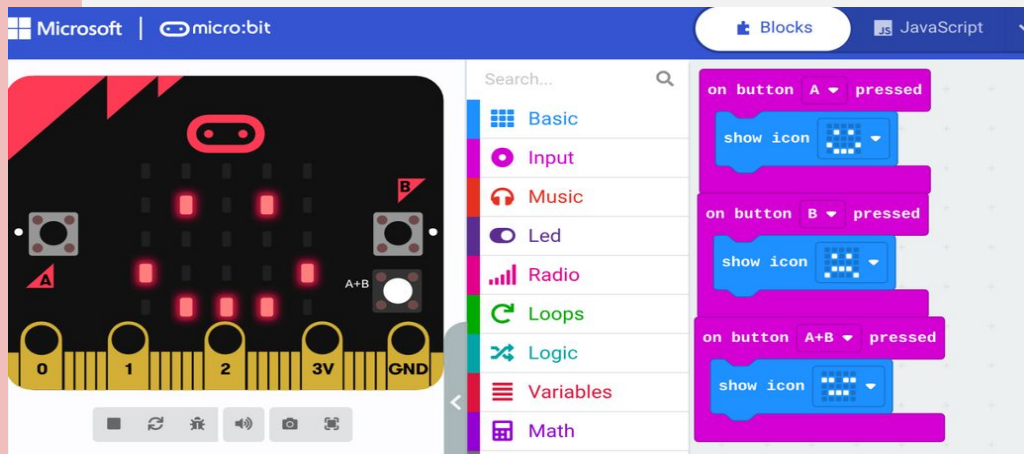
languages





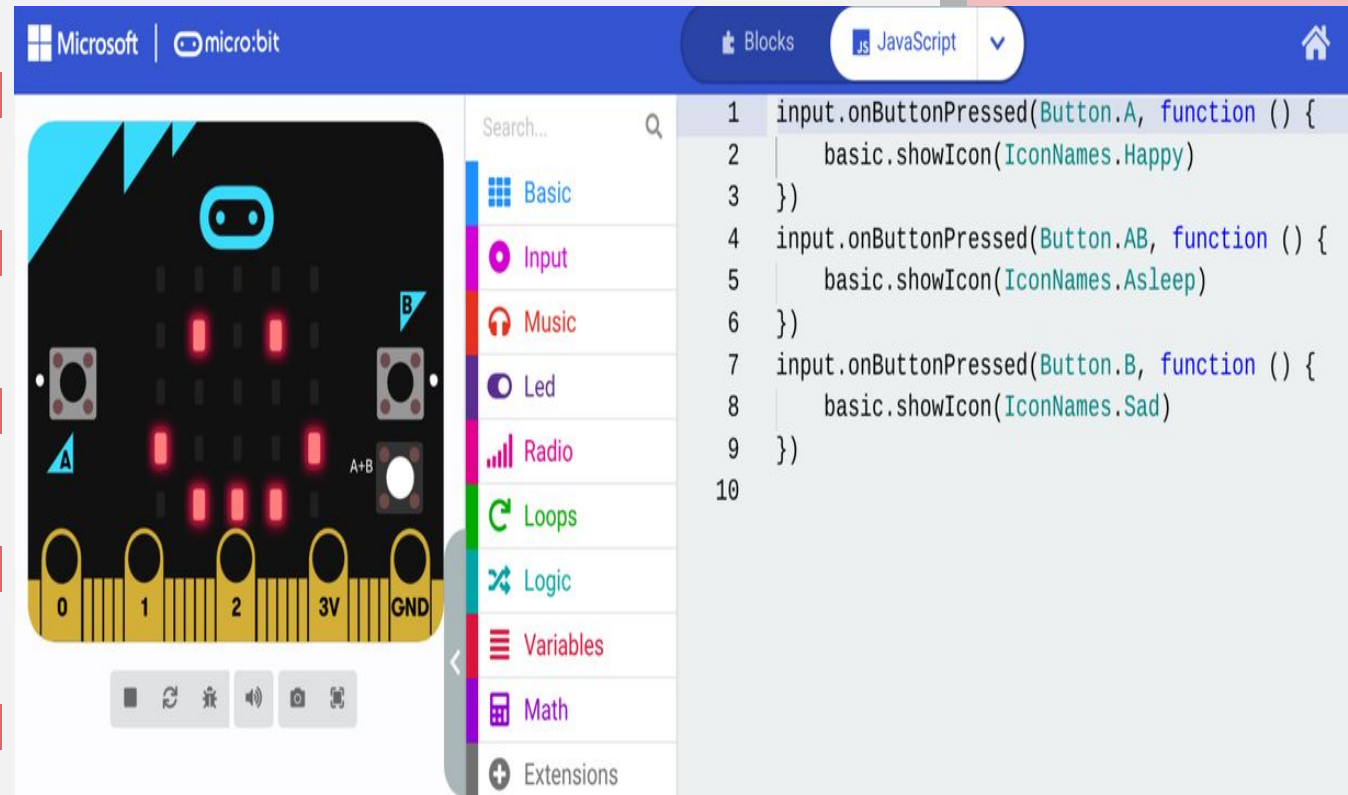
Bonus:
You can teach
programming
without a physical
device for each
student.

block coding



drag and drop

Java Script & Python

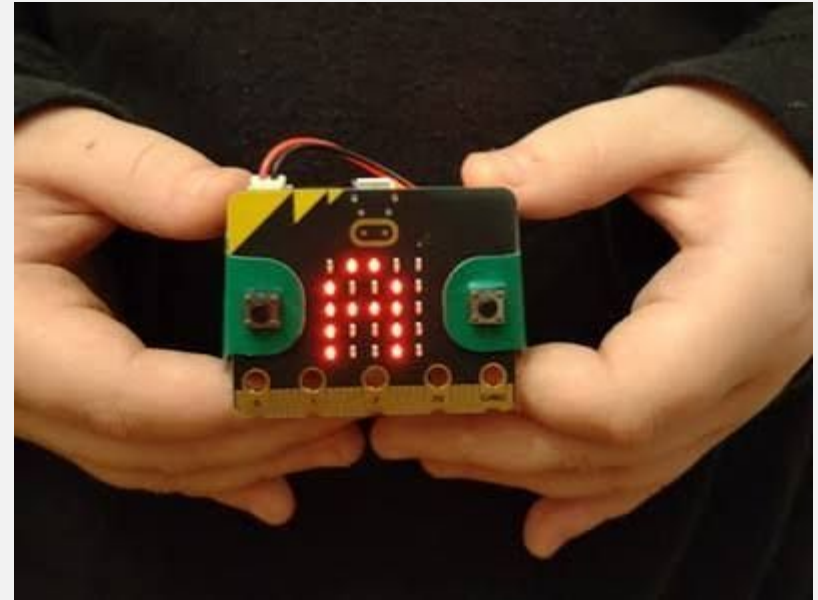


for more advanced students

Name Tag

Slides

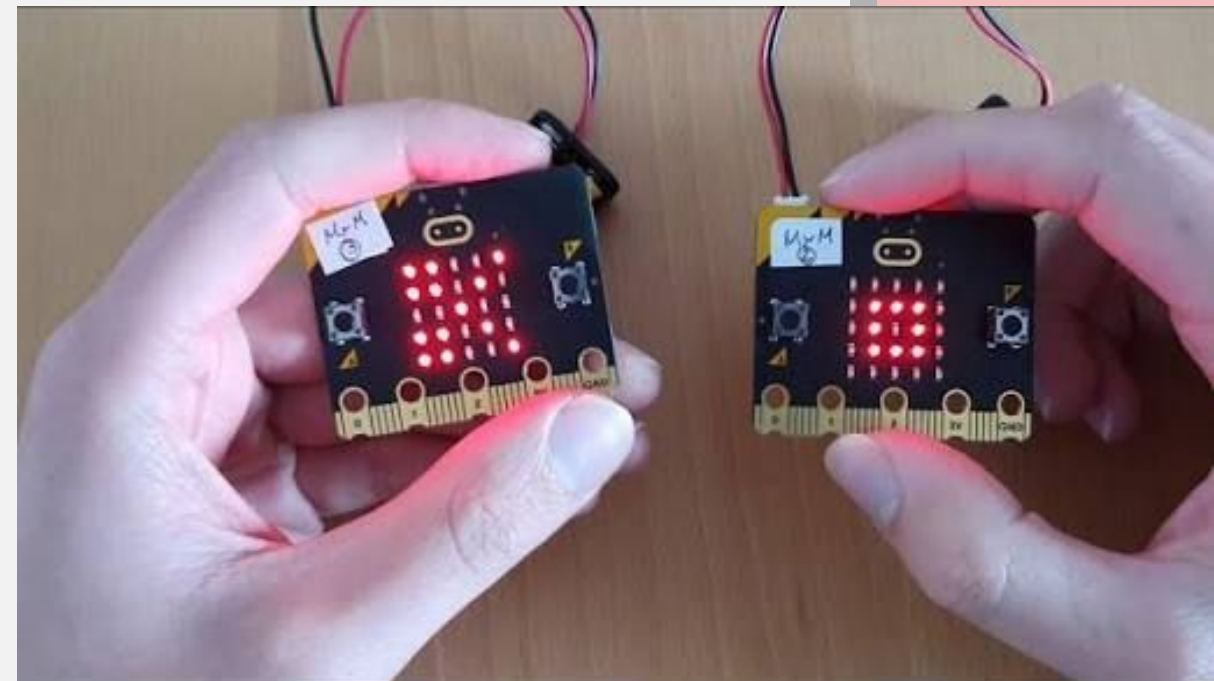
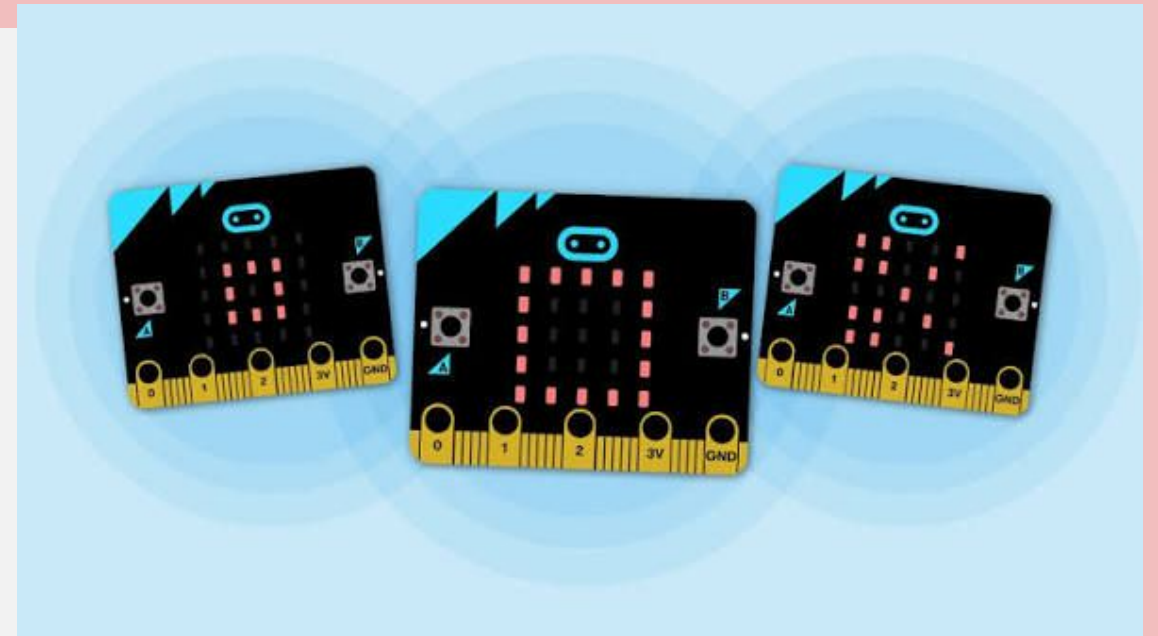
Tutorial



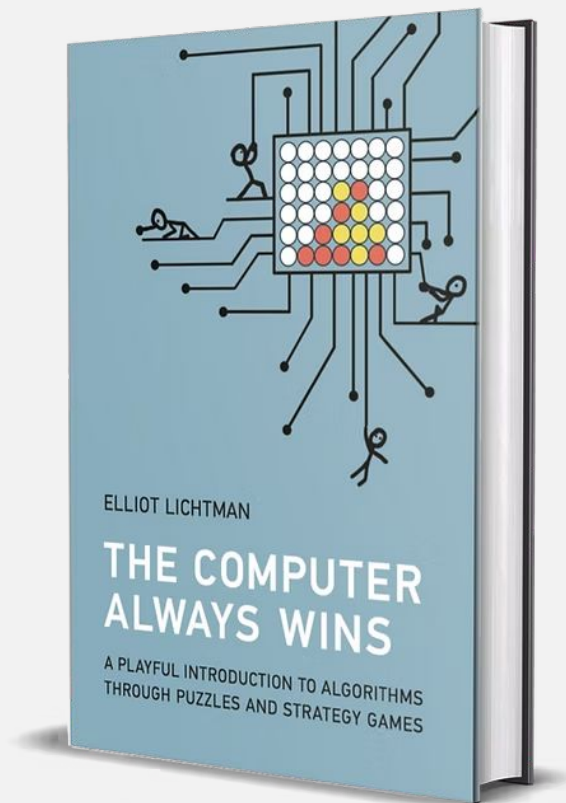
Rock, Paper, Scissors

Slides

Tutorial



Rock, Paper, Scissors



Add AI thinking:

a computer is an expert in detecting patterns. Can the computer detect patterns in this once “random” game of chance? Can you develop an advantage in this seemingly “unbiased” game?

Add functions to your code: boring, reluctance, and sore loser.

Find out more at

<https://www.thecomputeralwayswins.com>

SHARE OUT!



Are there any
lessons or tips you
want to share now
that we have had
some practice?

NJSLS CS and DT alignment with micro:bit Name Tag

lesson:

8.1.5.AP.3 Create programs that include sequences, events, loops, and conditionals.

8.1.5.AP.4 Break down problems into smaller, manageable steps to debug errors in algorithms.

8.1.5.CS.1 Model how computing devices connect to other components to form a system.

8.2.5.ED.1 Explain the functions of a system and the role of troubleshooting in identifying and solving problems.

8.2.5.NT.3 Identify how hardware and software work together as a system to accomplish tasks

***also aligns to ELA standards**

NJSLS CS & DT alignment with micro:bit

Rock, Paper, Scissors lesson:

- 8.1.5.AP.3 Create programs that include sequences, events, loops, and conditionals.
- 8.1.5.AP.4 Break down problems into smaller, manageable steps to debug errors in algorithms.
- 8.1.8.AP.4 Use flowcharts and/or pseudocode to address complex problems as algorithms
- 8.1.5.DA.4 Organize and present collected data visually to highlight relationships and support a claim.
- 8.2.5.ED.2 Collaborate to solve a simple problem, considering constraints such as available materials and resources.
- 8.2.5.ITH.1 Explain how technology has changed over time and its impact on various careers



***also aligns to Math standards**

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Thank
you for
attendin
g.

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