

Critical Making Lesson Plan

Title: Rule Data Tracker

Summary:

Students will make a data tracker device with Makey Makey and Scratch to track how the classroom is doing with the abstract idea of rules, specifically a classroom rule. After making a data tracker and using it within the classroom for a set period of time they will better understand the concept of rules and how they are applied in the classroom.

Learning Outcomes:

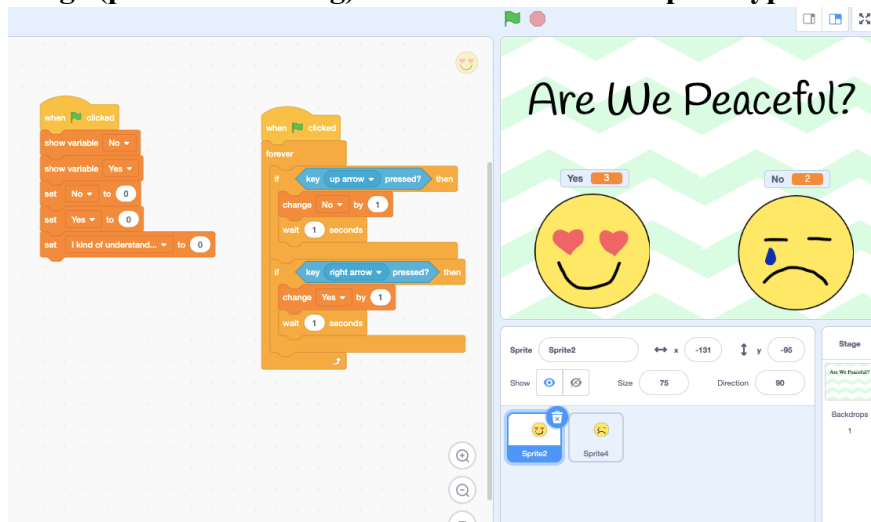
Students will learn about the abstract idea of rules more specifically the school rules of being peaceful, respectful, and responsible. They will learn what these rules mean in a school, why they are important, what they look like and how they can get better at following these rules. Students will also learn about circuits while making their physical data tracker. Students will learn coding skills including variables and coding with the Makey Makey kit. Lastly, students will learn how to analyze the data that they got from their data tracker device.

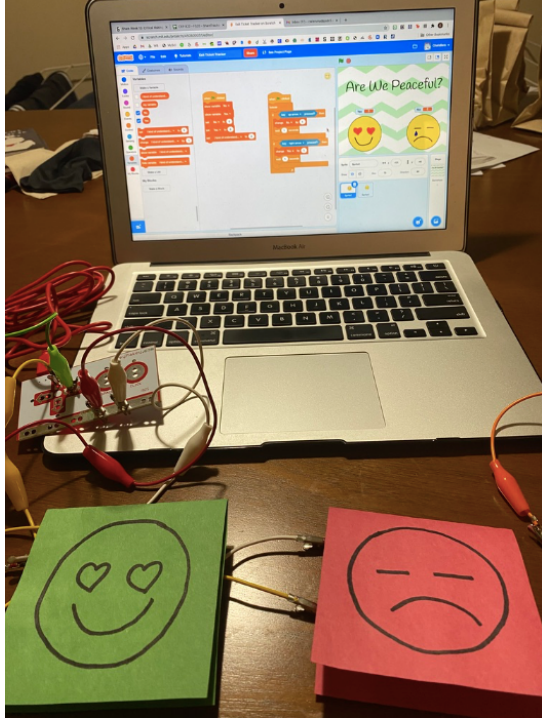
Resources & Materials:

- Makey Makey Kit
- Ipad/Laptop – MIT Scratch program
- Construction Paper / Art Materials
- Aluminum Foil
- Day 1 – LED's and coin batteries (for Makey Makey lesson 1)
- Butcher Paper

Duration: 1 week – 1-1.5 hour lessons a day + 1 week of that data tracker in place in the classroom

Image (photo or drawing) of final deliverable or prototype:





Lesson Outline

Day 1

Introduction: 2 minutes

Over the next couple of days/lessons we are going to learn about circuits using the Makey Makey. We are also going to learn some new coding skills in scratch. Then finally we are going to take what we learned from those two programs and make a useful tool in the classroom to help us follow our rules.

First, we need to learn what a circuit is!

Mini-Lesson – 10-15 minutes

Using an anchor chart, make a KWL chart. Ask students what they know about circuits / electricity. Then ask them what they wonder about circuits as well.

Show a BrainPop video on what a circuit is. (Since we don't technically learn circuits in second grade, I just want a surface level video introduction.) After the video, ask students what they learned about circuits.

Guided Practice – 10 minutes

Introduce the Makey Makey and what the purpose is of the tool. Go through the Makey Makey Lesson 1 (on their website) to introduce what is a circuit is using the Makey Makey.

<https://makeymakey.com/blogs/how-to-instructions/lesson-one-simple-circuit>

Activity – 15-20 minutes

Students will then participate in making their own circuits with their Makey Makey in groups of 3. (Make sure to talk about what it looks like to work in a group.)

Give students about 15 minutes to complete lesson 1 and then explore the Makey Makey as a group. Go around the room to help assist with this.

Share-Out – 5 minutes

What else did you learn that can go in the L portion of our KWL chart?

What are some hints that you can share out with the class that might be helpful later (record all answers on the chart)

Next time we will be learning about Scratch and making a Data Tracker with the Makey Makey!

Day 2

Introduction – 5 minutes

What did you learn about last time / yesterday when we talked about circuits? Students share out.

Today's goal: We will be learning how to make a Data Tracker using the Makey Makey which you learned about last time but this time you will be using Scratch program with it!

Guided Practice – 15 minutes

What do you know/remember about Scratch? (Write students ideas down on the board) This is like a warm up to get students thinking about what they already know about the program.

Go through the Data Tracker / Voting Machine Makey Makey Project with the students as a "tutorial".

<https://makeymakey.com/blogs/how-to-instructions/makey-your-own-exit-ticket-or-data-tracker>

Activity – 20-30 minutes

Give students 20-30 minutes to follow the tutorial on making a data tracker. Same groups of 3 from last time.

Share-Out – 10 minutes

Students will share out what they have made or what they have made so far to the class.

What worked well? What did not work well? What could you have done differently?

Day 3

Introduction – 5 minutes

What did you learn about last time / yesterday when we used Makey Makey and Scratch together. Students share out.

Now that we have learned different pieces of technology, we are going to put what we learned into action with a problem that we have in the classroom.

Mini-Lesson - [15 minutes]

What are some rules that we have here at school? Write down student answers on the board.
What are some examples of students following those rules?
Why do we have rules and/or why are rules important?

What is one rule that you think we struggle as a class the most? Either peaceful, responsible, or respectful (schoolwide rules). Ask students to share their answer and why.

Have students vote on what rule that we need to work on the most. Use the winner in the following prompt (put the prompt on the board)

Prompt: We struggle with _____ rule in the classroom, how can we track our rules to make sure we are following them in the classroom using the Makey Makey kit and Scratch.

Let's take apart the question. What do we need to know or do to answer the above question?

Examples/Make sure they talk about:

- What does this rule look like?
- How do we track it?
- How often do we track this goal?
- Where will we write down how we did?
- What materials will we need?
- Where will we put it?
- Who will track it? The whole class? One student? Teacher?
- Etc.

Activity – 20 minutes

In your groups that you have been working on, you will have a to make a data tracker to help us with _____ rule. Before you start making it with our technology, you need to brainstorm with your group. On your giant piece of paper, you need to draw a picture with labels what your idea is for our class rule data tracker. Make sure to use a lot of details and ask a lot of questions so it will be easier tomorrow for you to dive right into your project!

Show students all the materials that are available to them. They can also ask if we have another material that is not shown.

Materials Include:

- Makey Makey Kit (wires / alligator clips too)
- Scratch – Laptop
- Construction Paper
- Aluminum Foil
- (Anything else that you have in the classroom could work as well)

Let students work for roughly 20 minutes. Go around the room to ask prompting questions during this time.

Share-Out – 5 minutes

Students will do a gallery walk and look at other students plans.

Day 4/5

Introduction – 5 minutes

What have we been working on for this project so far? What have you learned from past days that could help you with making your data tracker? Students share out

With your groups, quickly plan on what you want to accomplish today and who is going to do what. Give students a few minutes to talk with their groups.

Activity – Give students plenty of time/days to complete this part.

Show students all the materials available to them and where they are in the classroom.

Have students work in their groups to make their data trackers. Go around the room to help, guide, and prompt students with questions.

Share-Out – 20 minutes

When all groups are done, have them share their trackers and how it works with the class. Make sure they answer these questions:

- Who will track it?
- Where will it be set up?
- How will you keep track at the end of the day? End of the week?

After all students have shared set them up in the classroom and start implementing the trackers.

During the Week:

At the end of each day for 10 minutes have students get in their groups and discuss/record/track their data with whatever system they put in place earlier.

One week later:

Introduction – 2 minutes

We have been tracking how we are following the rule of _____ for a week now. As a group you have been collecting that data to see how we have been doing as a class.

Now that we have the data or all this information on how we did, what should we do with it?

Mini-Lesson – 10 minutes

After you conduct an experiment that has data included, you need to analyze or look at your data to see what worked and what didn't work.

Let's look at these example numbers. How can I show these numbers in a prettier way? (Graphs – bar graph would be easiest for second grade).

Show students how to make a bar graph with their data. (Include x and y axis, numbers, titles, etc.)

What do we notice about our bar graph now? (Help students draw conclusions)

Activity – 15 minutes

Have students get in their groups to look at their numbers and make a bar graph to show their numbers. Then they will also have to decide what the graph means.

Give students 10-15 minutes to do this.

Share-Out – 10 minutes

Let's listen to what the groups have found with their data trackers.

Have groups share their graphs and findings.

Wrap up unit – 15 minutes

What are some big ideas that we learned about during this unit?

Looking for:

- Circuits
- Makey Makey
- Scratch (variables)
- Rules
- Making a Tracker
- Data

What are some things that went well with your data tracker?

What are some things that did not go well?

What would you have done differently?

Why are rules important?

What would happen if we didn't have rules?

Rules are very important! Not to just our classroom but for our whole world. Tracking our classroom rules made it so much easier for us to understand if we were doing the right or wrong thing as a class and will help us get better in the long run!