Makey- Makey Games

Scenario 3 – High

AiM| Autism in Motion

Encouraging well-being and healthy habits among children with autism through professional training and the integration of emerging technologies (2024-2026)

KA220-SCH -CDAB7AB2

Developed by Emphasys

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1. About the Game

1.1 Game Overview

Food Power: How Food Helps Your Body is a game that helps students aged 8–13 with Autism Spectrum Disorder (ASD) learn how healthy foods support different parts of the body. Four food cards – carrots, broccoli, bananas and apples – are connected to a Makey Makey board. When the student touches a food, the screen changes to a picture of the part of the body that food helps, and a friendly cat explains the benefit in a short sentence.

The game is built in Scratch, a free visual block-coding platform, and uses Makey Makey to turn the cards into touch buttons. No keyboard or mouse skills are needed to play.

1.2 Goal of the Game

The goal is to help students recognise healthy foods and understand how they benefit different parts and functions of the body. Using Makey Makey and Scratch, students explore carrots, broccoli, bananas and apples through simple physical interaction and clear body-benefit messages.

1.3 How the Game Is Played

The start screen shows the message “Touch a food to get the body benefit”. The student holds or touches the ground (Earth) cable and then touches one of the food cards:

Food card	**Makey Makey input**	**Picture on screen**	**Message**
Carrots	Up arrow (↑)	Eyes	Carrots help you see better!
Broccoli	Down arrow (↓)	Bones	Broccoli helps build strong bones!
Bananas	Right arrow (→)	Muscles	Bananas give your muscles energy!
Apples	Left arrow (←)	Heart	Apples help keep your heart healthy!

Each message stays on the screen for 7 seconds. The student can explore the foods in any order and revisit them as often as needed.

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1.4 Why This Game Works for Students with ASD

- Each food is linked to one clear picture of the body and one short sentence, making the message easy to remember.
- Every touch gives an immediate change on the screen, reinforcing cause and effect.
- The same pattern repeats for every food, which makes the game predictable.
- Only four cards keep the choices simple and manageable.
- Students can explore at their own pace and repeat any food as often as they like.

1.5 Learning Outcomes

- Students understand how different healthy foods support the body.
- Students learn that carrots support vision, broccoli supports strong bones, bananas give energy to muscles, and apples support heart health.
- Students strengthen food recognition by connecting each food card with its body benefit.
- Students develop cause-and-effect understanding, as touching each card shows how the food helps the body.
- Students receive immediate visual feedback, supporting an accessible and interactive learning experience.
- The game encourages healthy eating awareness while supporting attention, repetition and independent exploration.

1.6 About Makey Makey and Scratch

Makey Makey is a simple invention kit that connects to a computer by USB and turns everyday objects – such as fruit, cards or aluminium foil – into keyboard keys. When a student touches a connected object while also touching the ground cable, Makey Makey sends a key press (for example, the Space key or an arrow key) to the computer.

Scratch is a free, block-based coding platform. Instead of typing code, you drag and drop coloured blocks to build a program. Together, Makey Makey and Scratch offer schools and parents an easy way to introduce STEM-based projects into classrooms and homes, even without a technical background.

Key features for students with ASD:

- Customisable sensory inputs: sound, visuals and touch can be adapted to the sensory preferences of students aged 8–13 with ASD.
- Visual block coding: games are created with drag-and-drop blocks, which simplifies the design process.
- Adaptable game elements: messages, sounds and images can be changed easily to suit each student's comfort level.
- Educational and recreational focus: the same approach can be used for memory games, matching games and interactive stories.

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2. Creating the Code in Scratch

2.1 Open the Project

The ready-made game is available here: https://scratch.mit.edu/projects/1365048667/

1. Open the link above in a web browser (Chrome, Edge or Firefox).
2. Click “See inside” to view the code.
3. To make your own editable copy, sign in to Scratch and click “Remix”. You can then change the messages, sounds and pictures.

If you prefer to build the game from the beginning, follow the steps below.

2.2 Prepare the Backdrops and Sprite

1. Create a new project on scratch.mit.edu. Keep the cat sprite – it will explain each benefit.
2. Add a start backdrop with the text “Touch a food to get the body benefit” (called “backdrop2” in the ready-made project).
3. Add four more backdrops, one for each body part, named eyes, bones, muscles and heart.

2.3 Show the Start Screen

Select the cat sprite and add this script:

- **Events:** “when green flag clicked”
- **Looks:** “switch backdrop to [backdrop2]”

2.4 Show the Body Benefit When a Food Is Touched

In the cat sprite, add the following script for Carrots:

- **Events:** “when [up arrow] key pressed”
- **Looks:** “switch backdrop to [eyes]”
- **Looks:** “think [Carrots help you see better!] for 7 seconds”

Add the same script for each of the other foods, changing the key, backdrop and message:

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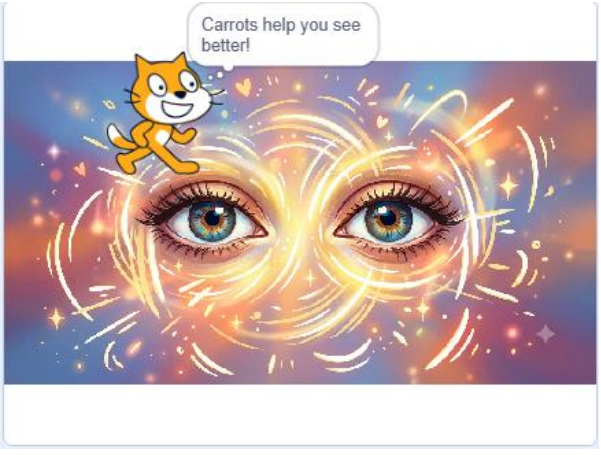
Food	Key	Backdrop	Message
Carrots	up arrow	eyes	Carrots help you see better!
Broccoli	down arrow	bones	Broccoli helps build strong bones!
Bananas	right arrow	muscles	Bananas give your muscles energy!
Apples	left arrow	heart	Apples help keep your heart healthy!

2.5 Test and Save

1. Click the green flag. The start screen should appear.
2. Press each arrow key on the keyboard. Check that the right picture and message appear.
3. Save the project (File > Save now) and click “Share” so the link can be opened by others.



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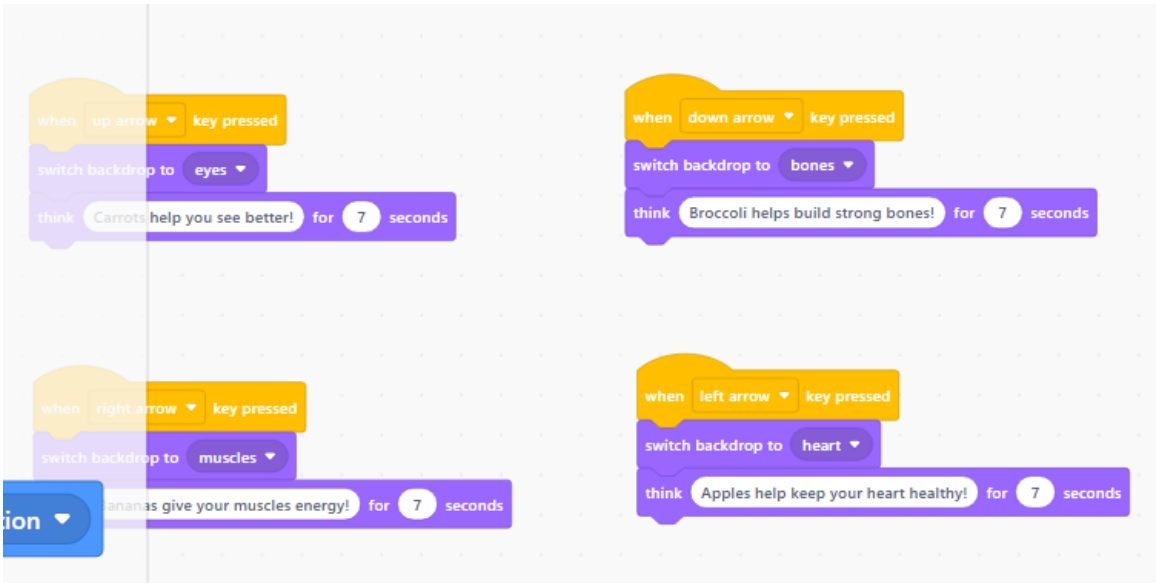

3. Setting Up the Game Using Makey Makey

3.1 What You Need

- A Makey Makey kit (board, USB cable and alligator clips)
- A computer with internet access and the Scratch project open
- Four printed food cards: carrots, broccoli, bananas and apples
- Something conductive for each card, for example aluminium foil on the back of the card

3.2 Connect the Makey Makey

1. Plug the Makey Makey into a USB port on the computer.

2. Connect one alligator clip to the ground (marked “Earth” on the Makey Makey). The student holds or touches this ground cable while touching the food cards.

3. Connect the other alligator clips to the following Makey Makey inputs and attach the other end of each clip to the matching card, using aluminium foil or another conductive connector:

Makey Makey input	**Food card**
Up arrow (↑)	Carrots
Down arrow (↓)	Broccoli
Right arrow (→)	Bananas

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Makey Makey input	Food card
Left arrow (←)	Apples

3.3 Start the Game

1. Open the Scratch project in the browser and click the green flag. Use full-screen mode to keep the screen simple.
2. Read the message “Touch a food to get the body benefit” together with the student.
3. Ask the student to hold the ground cable with one hand and touch one food card.
4. Look at the picture and read the message together.
5. Let the student explore all four foods in any order.

3.4 Tips for a Smooth Session

1. Test every card before the student arrives, so the game works first time.
2. Keep the table clear of extra objects and cables to reduce distractions.
3. Set the computer volume to a comfortable level before starting.
4. Show the student how to hold the ground cable and touch a card before they play on their own.
5. After the game, ask the student to match each food to its body part (for example, “Which food helps your eyes?”).

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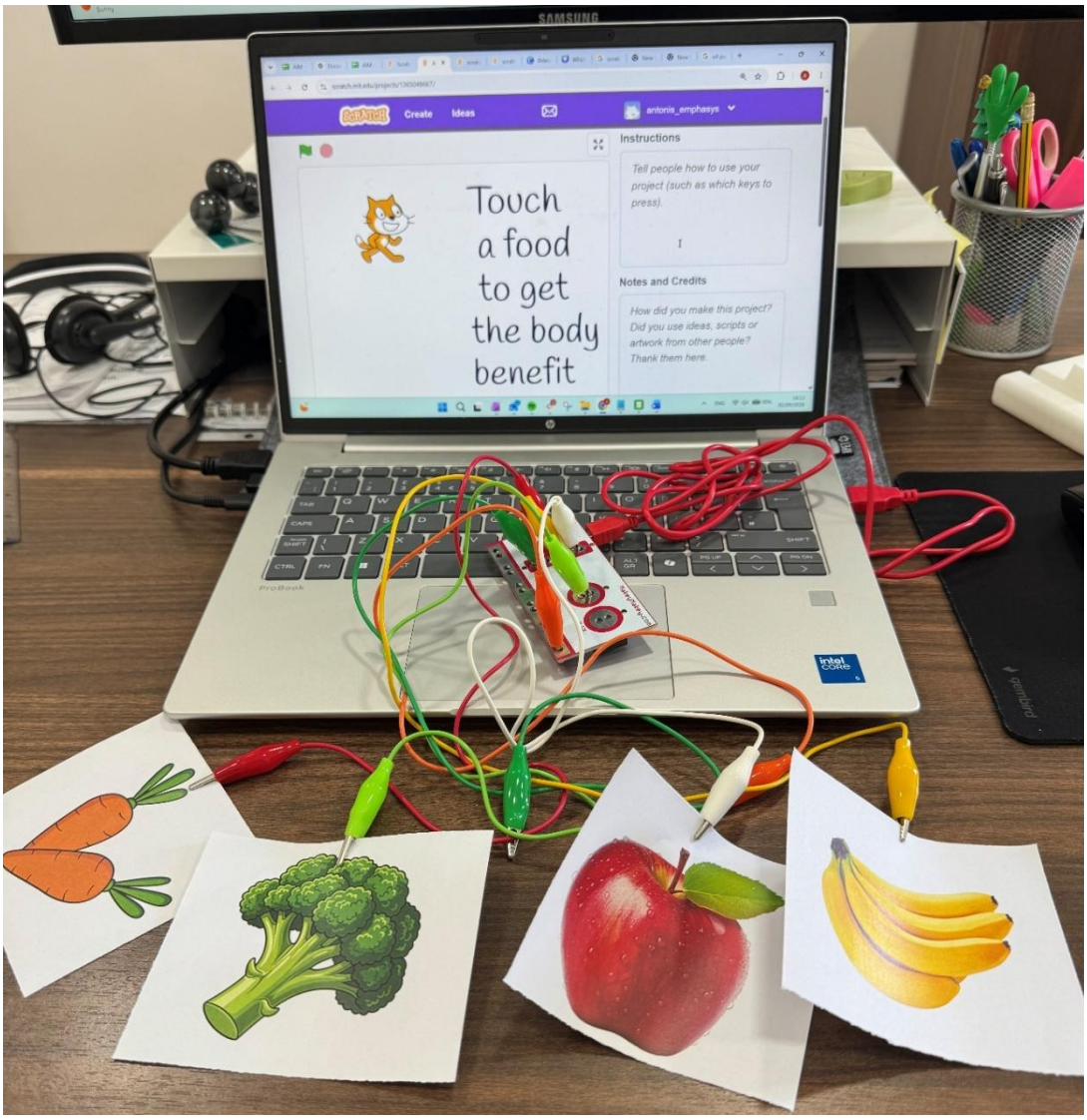

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