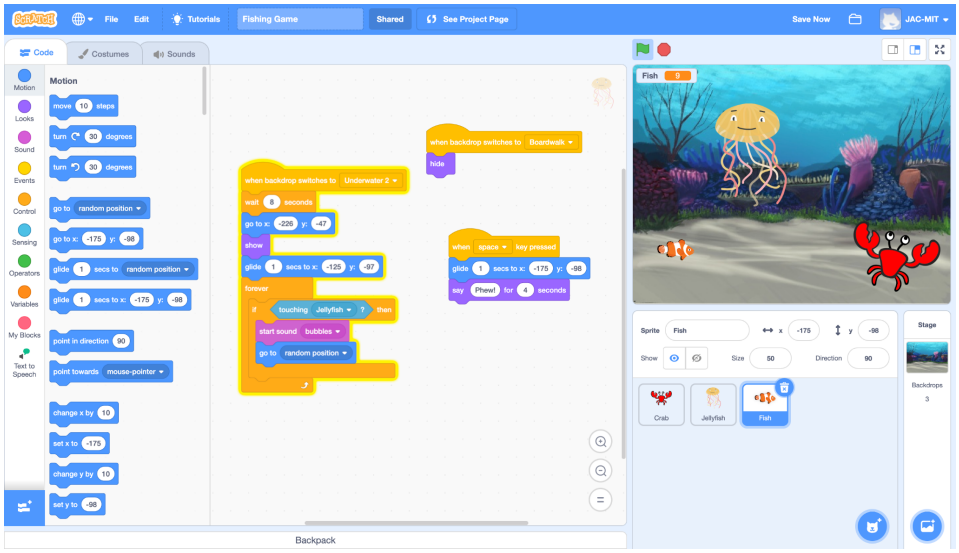
Introduction to Block-Based Coding

Shared by: Edgerton Center K-12 Maker Team

Specialized tools and materials used:	**Experience level required:**
Scratch.mit.edu	Beginner

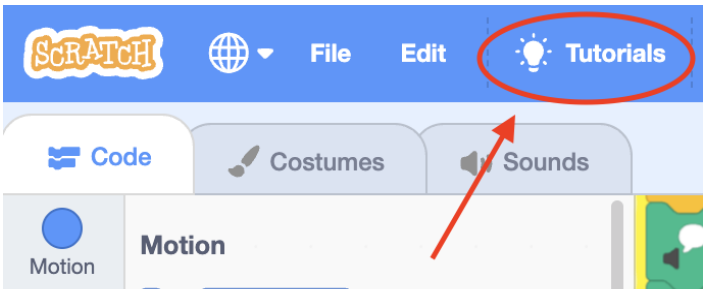
Grade Level and Subject (of this example): 7th Grade

Topic/Content Standards: Technological literacy, logic



Summary of Project

This activity is an introduction to block-based coding using the web program Scratch. Students will complete a series of tutorials and use their newly learned coding skills to create an original program that responds to user inputs.



Begin by visiting scratch.mit.edu and creating or logging into a free account. The “Create” button will start a new project. From that page, students can select “Tutorials” to get started.

The following set of tutorials is a good introduction to the main features of Scratch plus some of the most creative tools and concepts:

Module	Tools & Concepts Shown
Talking Tales	TTS (text-to-speech) extension, change sprite, change character voice, green flag start, change backdrop, add character, glide out and back
Animate an Adventure Game	Choose character, show and hide character, parts of the interface screen (library of code blocks, programming section, stage), categories of blocks, glide to mouse-pointer, forever loop, conditional block, variable
Create a Story	Backgrounds, sprites, speech block, additional sprite, costume tools, wait block, new background, event (when background switches to ___), hide and show blocks
Record a Sound	Recording and naming customs sounds
Animate a Character or Animate a Sprite	Costumes, wait blocks

Students should complete the tutorials, utilizing the walkthroughs and testing new concepts as needed. With an idea of what is possible to build, they can then storyboard ideas for their programs, and construct their programs. The narratives can be original, or based on material covered in class.

This project can be completed in 3 hours, depending on students familiarity with computers. The timing can also vary based on the assigned subject matter and desired length and format of the final product. The projects are saved to students' online Scratch accounts and can be accessed remotely if needed. Students may demonstrate their work as a presentation to the class, or students may explore each others' projects individually.

Suggested resources

- Scratch starter projects
- Scratch project featured in lead image
- How to share Scratch projects

Possible Content explorations

- **ELA:** Create a program in which Ophelia picks flowers, Hamlet sees ghosts, or Romeo serenades Juliette's balcony
- **Science:** Create an interactive program on topics like environmental stewardship, food webs, the water cycle, weather patterns, or lab safety.