

Title: *Programming with SCRATCH – Virtual Pet*

Subject Area: Computer Science

Grade Level: 2 (suitable for 8 and older)

Related Standards of Learning:

CSTA K-12 Computer Science Standards

CPP - Computing Practice & Programming
CT - Computational Thinking

ISTE Standards for Students

1 - Creativity and Innovation
2 - Communication and Collaboration
4 - Critical Thinking, Problem Solving, and Decision Making
6 - Technology Operations and Concepts

Common Core English Language Arts Standards

L – Language
SL - Speaking & Listening

Common Core Math Standards

G – Geometry
MP - Math Practices

Classroom Set-up:

1. Students need a computer or tablet with Internet connection.
2. Students need accounts for SCRATCH. Instructor needs Teacher account and student accounts can be established under Teacher account. Accounts can be obtained at SCRATCH.MIT.EDU
3. Projector for Powerpoint slides and videos

Objective:

Create an interactive pet that can eat, drink and play using the programming language Scratch.

Scratch is a programming language and online community where you can create your own interactive stories, games, and animations -- and share your creations with others around the world. In the process of designing and programming Scratch projects, young people learn to think creatively, reason systematically, and work collaboratively. To learn more about Scratch, check out the [About Scratch](#) page.

The ability to code computer programs is an important part of literacy in today's society. When people learn to code in Scratch, they learn important strategies for solving problems, designing projects, and communicating ideas. Scratch is designed especially for ages 8 to 16.

Summary:

Please refer to <https://resources.scratch.mit.edu/www/guides/en/PetGuide.pdf> for the Educator's Guide for this lesson. The guide is also pasted below in the Description section.

Vocabulary:

This lesson has two vocabulary words that are important to review:

- Al-go-ri-thm is a list of steps that you can follow to finish a task
- Pro-gram is an algorithm that has been coded into something that can be run by a machine

Materials:

Computers/laptops and power point slides.

Procedure:


Play introductory Computer Science videos. See Slides below for useful links.

Project on screen and demonstrate step by step instruction. See steps below.

Use Educator resources at <https://scratch.mit.edu/tips>.

Programming Steps: Virtual Pet


1. [Choose Your Pet](#)
2. [Choose a Backdrop](#)
3. [Introduce Your Pet](#)
4. [Animate Your Pet](#)
5. [Time to Eat](#)
6. [Eat Some Food](#)
7. [Time to Play](#)
8. [Add More Activities](#)
9. [Monitor Your Pet](#)
10. [Share Your Pet](#)

VIRTUAL PET / EDUCATOR GUIDE 

EDUCATOR GUIDE

Virtual Pet

With this guide, you can plan and lead a one-hour workshop using Scratch. Participants will create an interactive pet that can eat, drink, and play!



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Workshop Overview

Here's a suggested agenda for a one-hour workshop:

-  **IMAGINE**
10 minutes
First, gather as a group to introduce the theme and spark ideas.
-  **CREATE**
40 minutes
Next, help participants as they create interactive pets, working at their own pace.
-  **SHARE**
10 minutes
At the end of the session, gather together to share and reflect.

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Get Ready for the Workshop

Use this checklist to prepare for the workshop.

- Preview the Tutorial**
The *Virtual Pet* tutorial shows participants how to create their own projects. Preview the tutorial before the workshop and try the first few steps: scratch.mit.edu/pet
- Print the Activity Cards**
Print a few sets of *Virtual Pet* cards to have available for participants during the workshop. scratch.mit.edu/pet/cards
- Print Scratch blocks for warm-up activity**
Print and cut a script for each participant: bit.ly/ScratchBroadcastGame
- Make sure participants have Scratch accounts**
Participants can sign up for their own Scratch accounts at scratch.mit.edu, or you can set up student accounts if you have a Teacher Account. To request a Teacher Account, go to: scratch.mit.edu/educators
- Set up computers or laptops**
Arrange computers for participants to work individually or in pairs.
- Set up a computer with projector or large monitor.**

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Imagine

Begin by gathering the participants to introduce the theme and spark ideas for projects.

Warm-up Activity: Broadcast Game

To see how messages work in Scratch, play the *Broadcast Game*. Give each participant a piece of paper with one of the "when I receive" scripts on it (from bit.ly/ScratchBroadcastGame). Choose one person as the leader. The leader reads aloud one broadcast message at a time (e.g., "Exercise" or "Time to Dance"). Participants wait until they receive the message printed on their card, then act out the script.

Provide Ideas and Inspiration

To spark ideas, show a couple of examples of *Virtual Pet* projects from the *Virtual Pets Studio* on the Scratch website.



View the studio at scratch.mit.edu/studios/1275856/

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Demonstrate the First Steps

Demonstrate the first few steps of the tutorial so participants can see how to get started.

In Scratch, choose a new sprite as your pet.

Choose a backdrop.

Add a food sprite. Broadcast a new message and name it food.

Make your pet glide to the food when it receives the message.

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Create

Support participants as they make interactive pets, on their own or in pairs.

Start with Prompts
Ask participants questions to get started

What's your pet's name?
What does it like to eat?

Where is your pet going to live?

Provide Resources
Offer options for getting started

Some participants may want to follow the online tutorial: scratch.mit.edu/pet

Others may want to use the printed activity cards: scratch.mit.edu/pet/cards

Suggest Ideas for Starting

- Choose a pet and have it say hello
- Choose a backdrop
- Add a food sprite.
- Make your pet glide to the food when you click on the food.

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More Things to Try

- Animate your pet
- Add other activities for your pet to do, such as drink water, jump on trampoline, or play drums
- Have your pet say what it likes
- Make your pet hungry over time

Encourage Personalization and Customization

Encourage participants to enhance and customize their projects to reflect their own style:

What kind of pet would you like? How would you take care of it?

Is your pet shy? Noisy? How does it like to play?

Prepare to Share

To add instructions and credits to a project, click the button: "See project page".

This video shows how to share a project on the Scratch website: vimeo.com/llk/share

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Share

Have a virtual pet show. Ask participants to visit and interact with two or three virtual pet projects.

Ask questions to discuss:

What ideas did you get for your own pet?

What would you like to try next?

What's Next?

Participants can use the ideas and concepts from this workshop to create a wide variety of projects. Here are a couple of variations on the virtual pet project you could suggest.

Adopt a Pet
Find a pet project in the Virtual Pet Studio: scratch.mit.edu/studios/1275856/
Click **See Inside** and then **Remix**. Change the pet's looks, what it eats, or how it plays!

Creature Creator
Create your own dinosaur, extraterrestrial creature, or fantasy creature. Add sounds and animations.

Scratch is a project of the Lifelong Kindergarten Group at the MIT Media Lab.

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Slides to go along with lesson.

Algorithms and Programs

- Al-go-ri-thm is a list of steps that you can follow to finish a task
- Pro-gram is an algorithm that has been coded into something that can be run by a machine

SCRATCH

- SCRATCH is a programming language
- You can use it to program your own interactive stories, games, and animations — and share your creations with others in the online community.
- <https://vimeo.com/144905435>
- <http://scratch.mit.edu/classes/29970/registrer/e47b5eb90b9d4761a53cb89d3a4da348>

Create a Virtual Pet

- Make a virtual pet. Find out how to add sounds, animations, or other effects.
- [Computer Science Matters](#)
- <https://www.youtube.com/watch?v=liPLtP-jm8>
- [What is Computer Science?](#)
- <https://www.youtube.com/watch?v=HsXaVV6fFDY>

Discussion:

- What was your favorite part about this activity?

Note: Most of the programming classes are very tight on time because of the hands-on help that is needed for the students so we had very little time for discussions after the lesson. Also, the teacher was very helpful with hands-on assistance. Depending on the number of students you might need additional help.

References/Sources:

Activity was adapted from Scratch.mit.edu at <https://resources.scratch.mit.edu/www/guides/en/PetGuide.pdf>