Curriculum for ScratchJr Tutorial Pages

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What are "Tutorials"?

This curriculum will walk you through teaching a class to use the **Scratch Jr.** program on iPads using the provided "Tutorials" resources.

The "Tutorials" consist of 10 lessons, each introducing new buttons and concepts that students will use in creating their programs. These lessons should be adapted for each class based on students' ability levels, and educators are encouraged to create their own lessons as well.

When you open the Scratch Jr. "Projects" or home screen, there is a "i" button on the top right. Click on me to get to the Scratch Jr. Tutorials and Sample projects.

(If you see a "home" screen in the top right, congratulations, you're in the right place!)

Lesson 1
Explore

Overview: Introduces the interface and a wide range of basic blocks through completed examples and a blank page.

Warm-up (5-10 minutes):

- Go over iPad rules, if necessary
- Start with a game or activity (ex. "Simon Says") where kids must follow instructions
- Follow with quick discussion (What are "instructions"? What is a program?)
- Introduce Scratch Jr. as the new tool you'll be working with to write programs and make characters, stories and more!

Possible conversation topics: Every button causes something to happen (cause and effect) How to deal with frustrations (is it OK to smash the iPad?) Have you done anything with robotics or programming?

Explaining the Interface (5-10 minutes)

- As a class, look at a projected or "shared" iPad screen to check out the interface (if possible).
- Example:"When you use ScratchJr, you are giving instructions to a character. I'm going to start by giving instructions to a cat. Your program will also start with a cat, but, you can try to figure out how to change your character if you want to. Over here is where I can see what character I am programming. This is the stage area where my character will perform the actions I give it. Down here are all the instructions I can give to my cat. The blue instructions are motions, the orange instructions control the motions, like if I want my cat to move faster or slower. The pink blocks change how my cat looks. The red and yellow blocks are **really special**. They start and end my instructions."

What Does a Program Look Like? (5-10 minutes)

- From the "Tutorials" page, have students choose the "Explore" tutorial.
- As a class, follow the directions given at the top of page one.
- Clicking the "Green Flag" to the left of the stage area starts programs that begin with a yellow block depicting a green flag.
- After discussion (in groups or as a class) about what the Green Flag does, (make sure you point out the programs for each character at the bottom of the screen), go to Page 2
    - Switch by clicking on the blank page with a cat on the far right of the iPad screen

Exploring on the iPads (15-20 minutes)

- Give the students ample time to explore what buttons do. Let them try to write programs, figure out how to add characters, change backgrounds, etc. Encourage collaboration and peer-teaching as students discover new things.
- Tip: Start by showing the the blue "motion" blocks, which are the easiest to understand conceptually.

Note: students may be interested in creating new characters (not the default cat). They can change characters by pressing the Character button to the left of the stage area (a shadowed cat), but there must always be at least one character on-screen. To delete, hold down the character and click the "x" when it pops up.

Note: Backgrounds can be changed by clicking the "Background" button to the left of the stage area. The first, blank, background choice is a paint editor that allows students to make their own backgrounds; this can be a distraction from building programs if the goals are to explore specific, new blocks.

Conclude: Class discussion/sharing about things students found while exploring Scratch Jr.

Lesson 2
Motions and Resetting

Overview: Introduces linear motion blocks, the idea of using reset scripts, and programming more than one character.

Warm-up (5-10 minutes)

- Ask students what they remember from last time

Work Through Tutorial As a Class (20 minutes)

- Go to the "Motions and Resetting" Tutorial

Page 1

- Students follow the directions given on Page 1
- Discuss what each script does (and the differences between each program)
- Go to Page 2

Page 2

- Students can connect the blocks and work to get the cat to the next door.
- Have students click the "Go Home", or "reset" button, to see what it does.
- Discuss what the button is for (Does the cat go backwards? Does it disappear and reappear randomly? No, it returns to wherever it started).
- Go to Page 3

Page 3

- Students follow the directions given on Page 3.
- Students should figure out to click each button (programmed to move 8 units per tap) in sequence to get the cat to each circle.
- Go to Page 4

Page 4 - Explore! (20 minutes)

- Give students time to explore and create their own stories (program the cat) with blue motion blocks"

Lesson 3
Speeds

Overview: Reinforces motion, distance, and programming more than one character. Introduces the Set Speed block.

Warm-up (5-10 minutes)
Ask students what they remember from last time

Work Through Tutorial As a Class (20 minutes)

- Open the "Speeds" Tutorial

Page 1

- Have students tap the scripts in the script area at the bottom of the screen.
- Discuss the difference between the three orange buttons (speed)
- Point out the numbers under each blue motion block. What do these mean?
- Explain how to create multiple characters (See Note in Lesson 1).

Page 2

- Can you make the characters race?
- Students should create programs using the given blocks as a starting point
- Have students program both characters (switch between characters in the top left portion of the screen).

Page 3 - Explore! (20 minutes)

- Have them create their own story with speed!

Lesson 4
Looks and Start on Tap

Overview: Reinforces motion and programming more than one character. Introduces Grow/Shrink/Reset Size, Hide/Show, and Start on Tap.

Warm-up (5-10 minutes)

- Ask class what they remember about multiple characters (How do you switch between characters? Can you make them do different things with different programs? How?)
- Review motion blocks
- Show the class the "Start on Tap" button, where/how to use it.

Work Through Tutorial As a Class (20 minutes)

- Open the "Looks and Start on Tap" Tutorial

Page 1

- Have students tap the scripts about looks (as it says on the screen).
- Discuss with the class what each one does
    - Talk about Grow/Shrink/Reset Size, Hide/Show (Disappear/Appear)
- *Tip: have students guess what each button might do before trying them*

Page 2

- Can you make the clouds disappear so Starfish can swim in the sun?
- Students should create programs using the given blocks as a starting point
- Start on Tap should be used, and the clouds are the only characters that need to be programmed.
- Tap Starfish once clouds disappear to see how happy he is in the Sun!

Page 3

- Can you make the caterpillar grow as he eats?
- Students should create a program using the given blocks as a starting point

Page 4 - Explore (20 minutes)

- Have them create their own story with Looks blocks!

Lesson 5
Start on Bump

Overview: Introduces the “Start on Bump” block, which directs characters to start their action only when “bumped” by another character.

Warm-up (5-10 minutes)

- Review the starting blocks we have learned already, and the differences between each
    - Green Flag, Start on Tap

Work Through Tutorial As a Class (20 minutes)

- Open the “Start on Bump” Tutorial

Page 1

- Have students tap the scripts (as it says on the screen).
- Discuss with the class what happens when the cat touches each character
- *Tip: have students guess what is happening before explaining what Start on Bump does*

Page 2

- Can you make the cats finish the relay race?
    - Orange cat starts the race, blue cat finishes the race
- Students should create programs using the given blocks as a starting point
- Have students program both characters to make this work

Page 3 - Explore (20 minutes)

- Have them create their own story with Start on Bump!

Lesson 6
2 Scripts

Overview: Reinforces blocks learned up to this point. Introduces the concept of starting multiple programs to run at the same time. Encourages the exploration of new blocks (Say, Sound).

Warm-up (5-10 minutes)

- Briefly review all blocks covered up to this point
    - Make sure Start on Tap is reviewed along with other blocks (motion, looks blocks)

Work Through Tutorial As a Class (20 minutes)

- Show students the "Say" button (the character will produce a speech bubble with a specified message).
- *Tip: for students who are not yet comfortable spelling, brainstorm some phrases on the board and write them out. Ex. "different greetings" like "hello", "hi", "bye", "I'm ____"*
- Open the "2 Scripts" Tutorial

Page 1

- Have students tap the green flag.
- What happens? Do they happen at the same time?

Page 2

- Can you make the characters run two programs when you tap them?
- Students should create programs using the given blocks as a starting point
- Have students program all three characters, so each character enacts at least 2 actions when tapped.
- For the balloon: the "pop" sound

Page 3 - Explore (20 minutes)

- Have them create their own story using two scripts that play at the same time!
- *Tip: If students start using the "pop" sound block, they may discover the block next to it, which is a "record yourself" block. This may get them off-track, so either disallow use of that function or keep them on-task by reminding students of the goal).*

Lesson 7
Repeating with #s

Overview: Introduces the idea of repeating multiple actions a specified number of time with the use of Repeat blocks.

Warm-up (5-10 minutes)
Ask students what they remember from last time

Work Through Tutorial As a Class (20 minutes)

- Open the “Repeating with #s” Tutorial

Page 1

- Have students tap the scripts in the script area at the bottom of the screen.
- What happens with each one? How many times does it do the actions over again?
- Point out the numbers under each repeat block. What do these mean?
- Show students where to find the Repeat blocks.

Page 2

- Can you make the ball bounce 3 times?
- Students should create programs using the given blocks as a starting point
- Some students may try to connect 6 up- and down- blocks to make this happen. Emphasize that they can do the same thing more easily with the Repeat block.
- Bonus: Students that grasp the Repeat concept right away should try to make the ball go into the hoop after it bounces!

Page 3 - Explore (20 minutes)

- Have them create their own story with repeating!
- Besides repeats, they should be encouraged to use recently used blocks like “Say”, “Start on Bump”, “Sound”, etc.

Lesson 8
Waiting

Overview: Introduces the concept of starting programs to run at a delayed time (after “waiting”).

Warm-up (5-10 minutes)
Ask students what they remember from last time

Work Through Tutorial As a Class (20 minutes)

- Open the “Waiting” Tutorial

Page 1

- Have students tap the scripts in the script area at the bottom of the screen.
- What happens with each one? What is the difference between the scripts?
- Why do some take/wait longer than others?
- Point out the numbers under each block. Why are these important? (Tied with questions above)

Page 2

- Can you program the cat to get on the bus when the bus gets to the bus stop?
- Students should test different times to get the cat to go “up” when the bus doors are alongside it. (you don’t want the cat to get hit by the bus!)
- Tap the bus to move it after the cat “gets on”.
- Students should create programs using the given blocks as a starting point (should not have to program bus).

Page 3 - Explore (20 minutes)

- Have them create their own story with waiting!

Lesson 9
Messages 1

Overview: Introduces the concept of sending a “Message” or letter to another program to get it to starts. Different colored Messages allow for conjoining of multiple programs (fairly complex).

Warm-up (5-10 minutes)
Ask students what they remember from last time

Work Through Tutorial As a Class (20 minutes)

- Open the “Messages 1” Tutorial

Page 1

- Have students guess what will happen when the scripts are tapped.
- What is different about the yellow starting blocks?
- Do you see envelopes of the same color anywhere? Discuss difference between “open” and “closed” Messages (one is being sent, another is received). Ask if students have gotten letters in the mail before; liken it to that.
- Tap the scripts in the script area at the bottom of the screen to see what happens.
- How are the programs connected? Which button can you press to get all the programs to run just once? (White, “send” envelope). In what order will the programs run?

Page 2

- Can you make the messages the same color so the dog will go to the boy?
- Explore how to change the colors of messages so they will match and run correctly.

Page 3 - Explore (20 minutes)

- Have them create their own story with messages!

Lesson 10
Messages 2

Overview: Reinforces programming with Messages. Further explores the possibilities in programming when using many types (or colors) of messages.

Warm-up (5-10 minutes)

- Review Message blocks from last time. What do they do? Why are they useful? What do you have to be careful of when programming with them?
- Also review Say, Sound, looks, Wait, Repeat blocks, etc

Work Through Tutorial As a Class (20 minutes)

- Open the "Messages 2" Tutorial

Page 1

- Have students tap the scripts in the script area at the bottom of the screen.
- In what order do the programs run?

Page 2

- Can you get the morning started? (Follow the directions given on Page 2).
- Students should create programs using the given blocks as a starting point, to get each character to carry out the specified action.
- Have students program all three characters, with messages connecting the programs of the three. (Sun starts rising when the Moon finishes setting, Rooster crows when Sun finished rising.)

Page 3 - Explore (20 minutes)

- Have them create their own story with many messages!
- Encourage use of many different types of blocks!
- *Tip: Have students come up with a plan/idea for what story they want to create with their messages and other blocks, so they have a cohesive story at the end of the lesson.*

Note: This "Create your own story" lesson can be spread out over a few days. Now that students know how to use most if not all the blocks, they should be able to create programs and "stories" that correspond to lessons they are learning in school outside of Scratch Jr (ex. a dance, re-creating stories such as the 3 Little Pigs, a lesson about the Life Cycle of Frogs… the options are endless.)