makeblock

Lesson 2
Panda's Greeting

Subject: Computer Science

Level of Difficulty: Beginner

Duration: 45 minutes

Objectives

By the end of class, students will be able to…

- write a program using the block-based programming language, mBlock;
- use sprites, backgrounds and programming blocks to communicate a story;
- distinguish between the "say..." and "say... for ( ) seconds" blocks;
- select and add an appropriate stage background to a mBlock project;

Overview

In this lesson, students explore new programming blocks from the library and combine them to create a sequential program. They think critically to identify and explain differences between similar programming blocks. Through creativity and imagination, students create a scene and program a sprite to bring a story to life. Students seek and incorporate feedback from peers and make plans to revise their project.

Key Focus

- Use mBlock to create a program that tells a story.

Pre-lesson Checklist

For Teacher:

- A computer with mBlock software installed or access to the mBlock software website
- Slides Presentation: *Lesson 2 - Smart Starman*

For Student:

- A computer with mBlock software installed or access to the mBlock software website

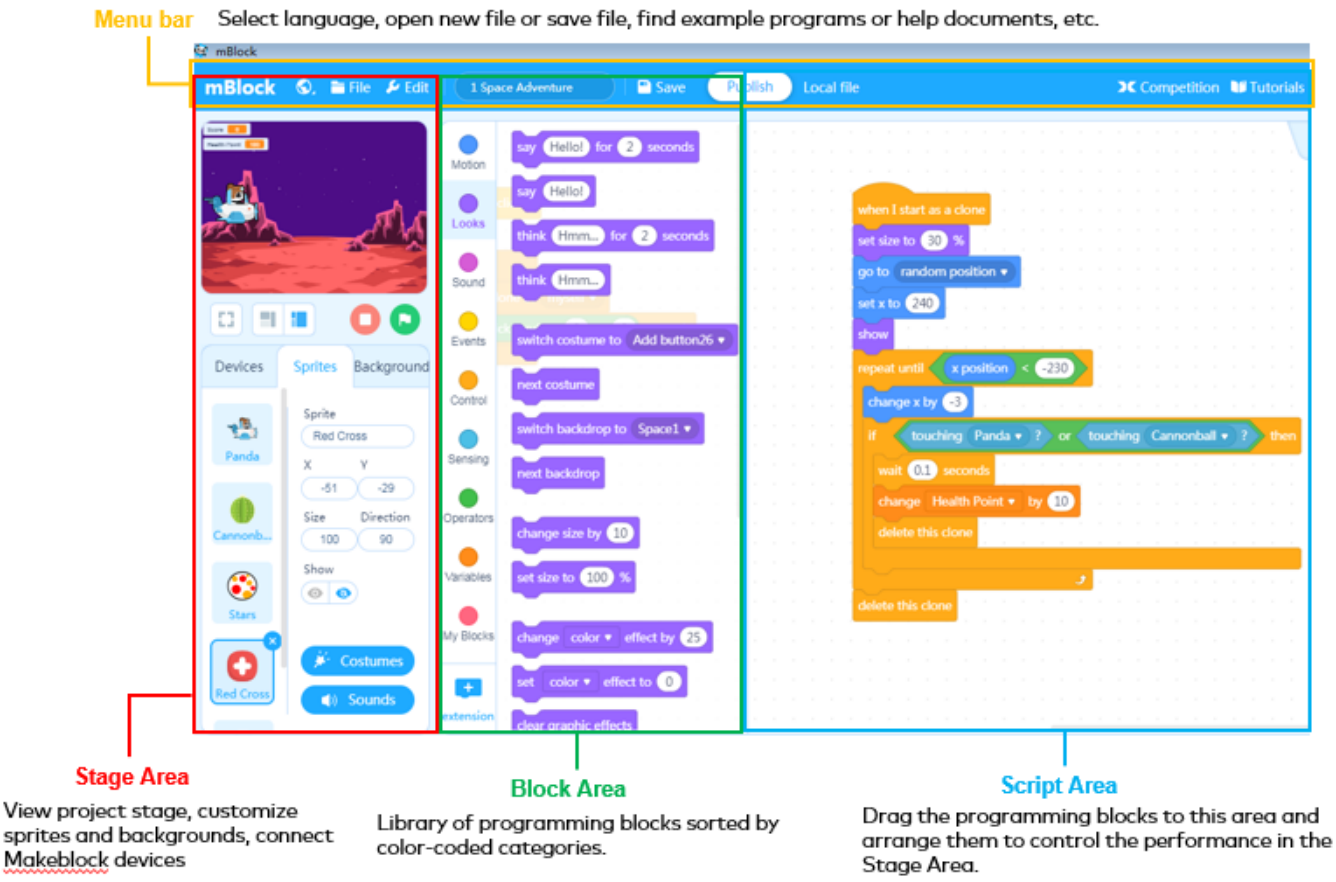
Standards

- **CSTA 2-AP-13**: Decompose problems and subproblems into parts to facilitate the design, implementation, and review of programs
- **CSTA 2-AP-15:** Seek and incorporate feedback from team members and users to refine a solution that meets user needs.
- **ISTE-1D:** Students understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.
- **ISTE-5C:** Students break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
- **ISTE-6A:** Students choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
- **ISTE-6B:** Students create original works or responsibly repurpose or remix digital resources into new creations.
- **ISTE-6D:** Students publish or present content that customizes the message and medium for their intended audiences.

Lesson Plan

Warm-Up [5 min]

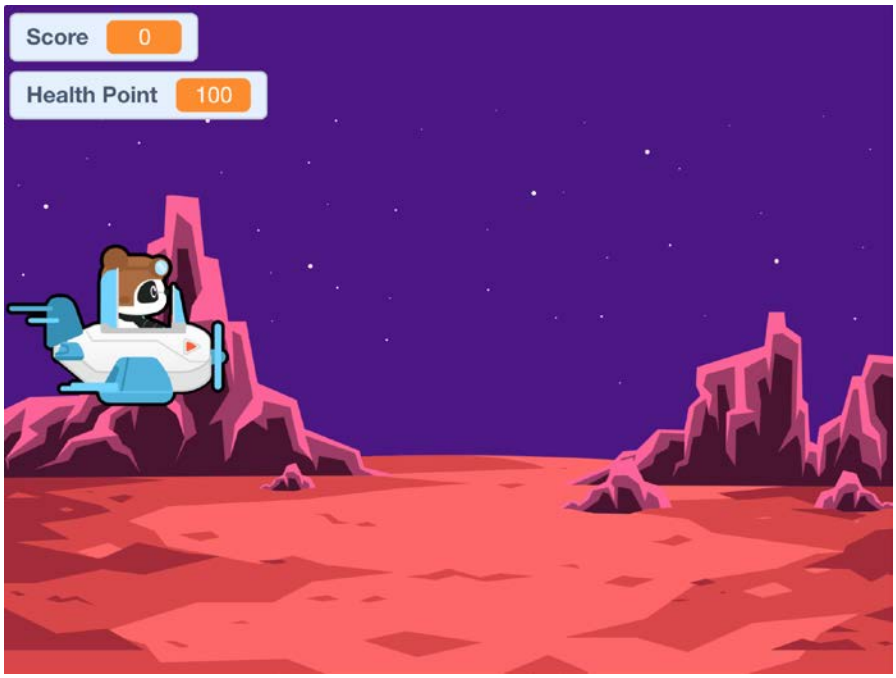
In the previous lesson, students learned about the mBlock interface and how to run a program. Review the software interface of mBlock and the functions of different buttons.



Icon	Name	Function
	Green flag	Start the program
	Stop	Stop the program
	Full screen	Enter full screen mode

	Exit full screen	Exit full screen mode

Game Review – Space Adventure



In Lesson 1, students explored the example project, **Space Adventures**. The main character, the pilot, was named Panda. Often, video games have a backstory for the game's characters. Here is additional information about Panda:

> Panda is a pilot from a galaxy far far away. Panda spent many months navigating across many miles of dangerous stars and asteroids and finally arrived at Earth safely. Unfortunately, Panda isn't able to speak. Panda hopes we can work together to communicate, so Panda can say hello and tell us about this amazing trip.

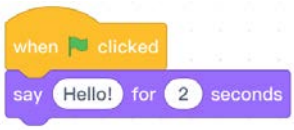
Have students write a short 3-4 sentence introduction that Panda may say when meeting new friends on Earth.

Hands-On [15 min]

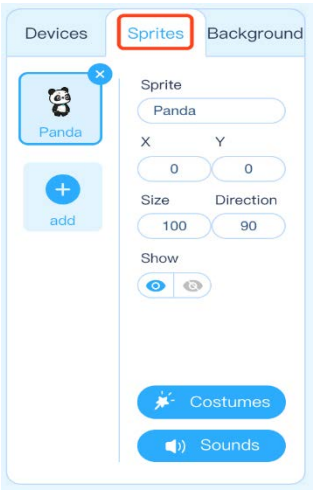
To help Panda communicate, students need to learn to create a program to have Panda speak.

Make a Sprite Speak

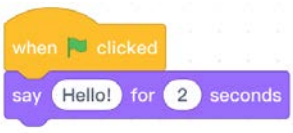
Review the following blocks that will be used to make a sprite speak.

Block Area	Block	Function	Example
Events	when clicked	Start event. Execute all subsequent instruction blocks attached to this block after clicking the green flag.	
Looks	say Hello! for 2 seconds	Say “Hello!” for 2 seconds. The phrase and duration can be changed.	
	say Hello!	Continuously say “Hello!”. The phrase can be changed.	

Instruct the students to write their program according to the steps below:

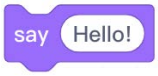


1. Open the mBlock software. Create a new file and click the **Sprites** tab in the Stage Area to ensure that we are programming the Panda sprite.
2. Find and select Events from the block area. Click and drag the when clicked block to the Script Area and then release it.
3. Find and select Looks from the Block Area. Click and drag the say Hello! for 2 seconds block to the Script Area and attach it beneath the when clicked block.

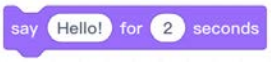


4. Click the  in the Stage Area to run the program and observe Panda speaking.

5. Click and drag the  block from the Script Area to the Block Area. The block will be deleted from the Script Area.

6. Find and select  from the Block Area. Click and drag the  block to the Script Area and attach it beneath the  block.

7. Click the  in the Stage Area to run the program and observe Panda speaking.

8. Have students compare and contrast the difference between the  and  blocks.

Time Out: Take a moment to review the following fundamentals for working in mBlock and saving programs in mBlock.

1. *How do you delete a block?*
   Click and drag the block to be deleted from the Script Area to the Block Area and then release it.

   That will delete the block from the Script Area.

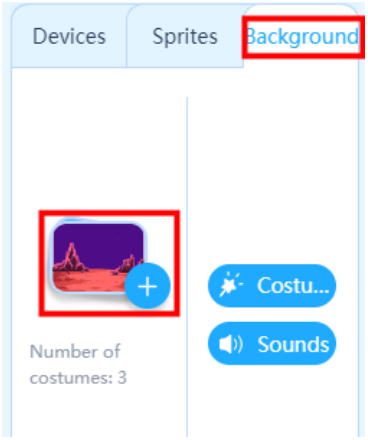
2. *How do you save a file?*
   Click **File** in the menu bar, select **Save to Your Computer**. Confirm the location and file name and save your work to the computer. Make sure you save their program often.

3. *How do you move a sprite to a different place on the stage?*
   On the stage, click and drag the sprite to the desired position. The sprite will remain in this location until a motion block is used to change the sprite's position.

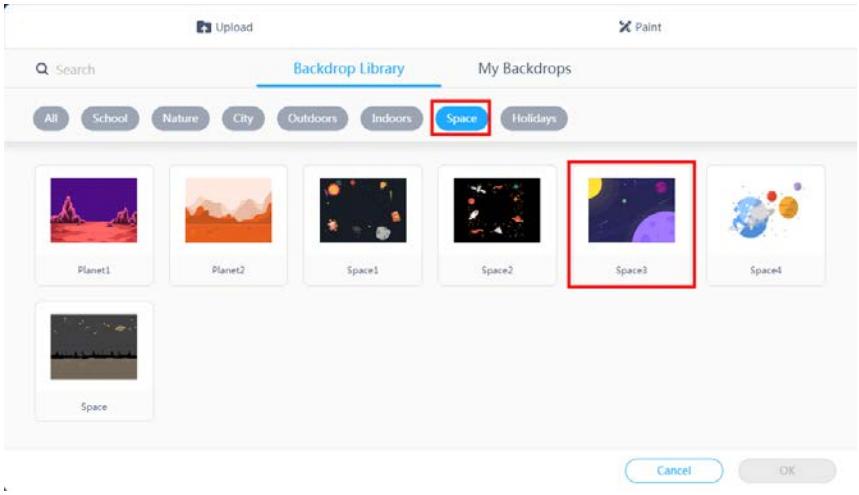
Add a Background

In order to make Panda feel at home on Earth, we will change the background to outer space for Panda to feel more comfortable in his environment.

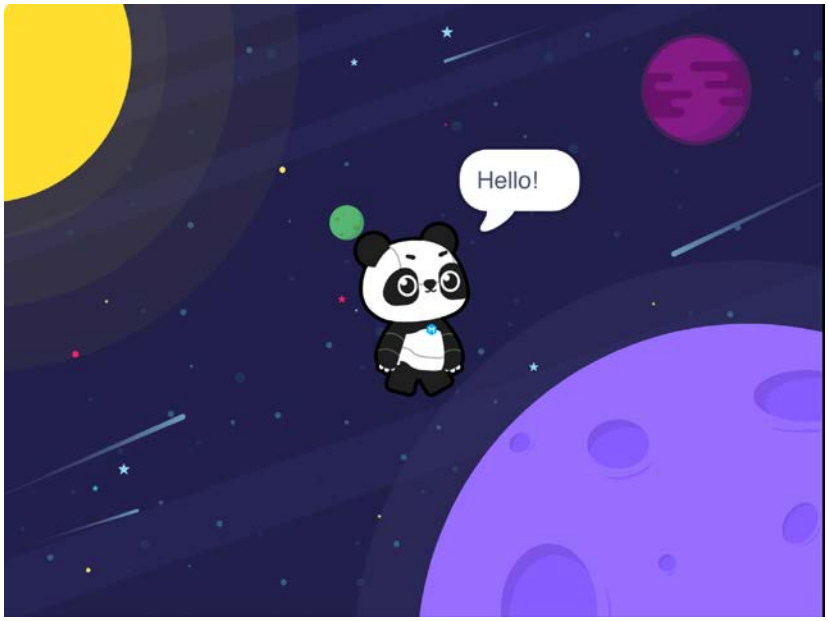
1. Click the **Background** tab in the Stage Area and click  .



2. Enter **Backdrop Library**, click the Space filter, select the **Space3** backdrop, and then click **OK**.



3. Confirm that the background has changed to a space background for Panda..



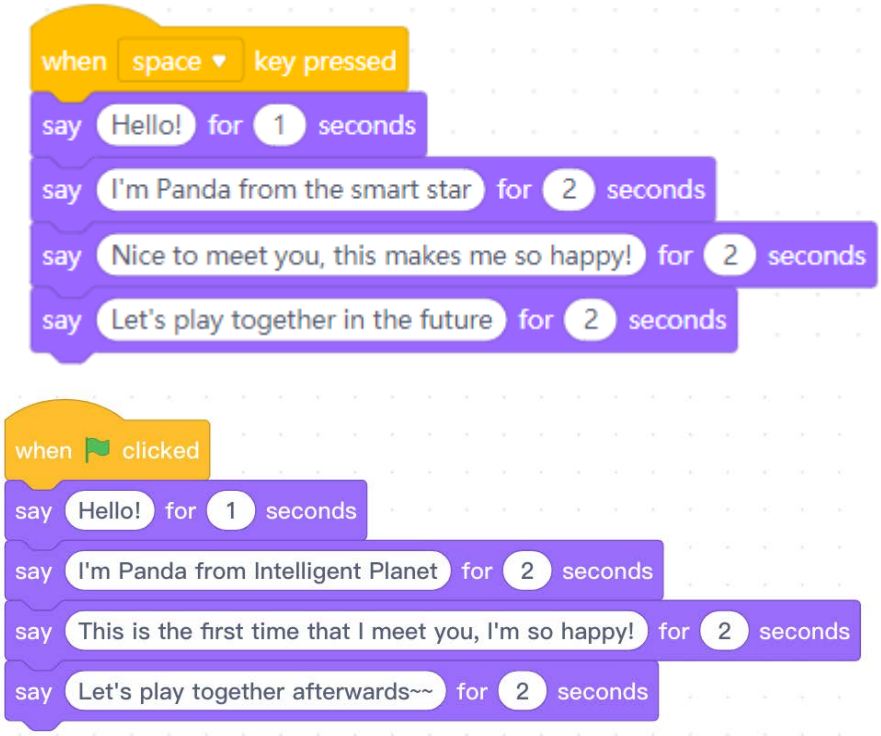
Try It [15 min]

Independent Practice

Instruct the students to program Panda's introduction that they wrote during the warm-up.

Quick Tip: Remind students to adjust the duration to ensure that readers have enough time to read each sentence.

Panda Introduction Example Code



Extension Activity

Challenge students with remaining time to do one or more of the following:

- Add a motion animation to have Panda move across the stage.
- Add an additional sprite who also introduces themselves or has a conversation with Panda.
- Change the event to something besides 

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Example Extension Project – See example project included with curriculum.

Wrap-Up [15 min]

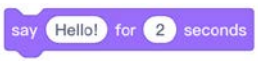
Assessment

1. Instruct students to display their Panda Introduction project on their computer screen. Place a piece of paper on the desk next to each computer.
2. Facilitate a “Meet the Pandas” activity where students circulate around the room and run the other students’ projects. While viewing each project, have students write the following comments on the sheet of paper on the desk:
   a) Share one thing that you found **interesting** about the project.
   b) Share one recommendation for **improving** the project.
3. Facilitate a discussion on what students observed from viewing the other students’ projects.
4. Have students reflect on improvements and changes they would make based on the feedback received.

Alternative Assessment Ideas

- Record a screencast of the project and share the video virtually (i.e. Flipgrid).
- Share your project with a classmate, parent or sibling and ask for feedback.

Quiz

(1) Which block area does 

and 

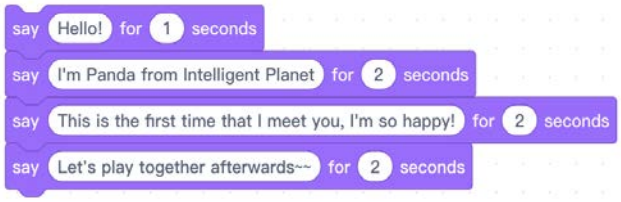
belong to?

A. Events B. Looks C. Sound D. Control

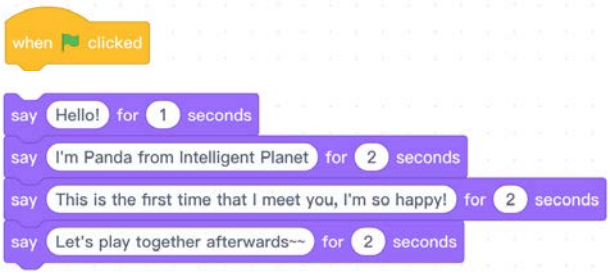
Answer: B

(2) Which of the following programs can make Panda successfully introduce itself?

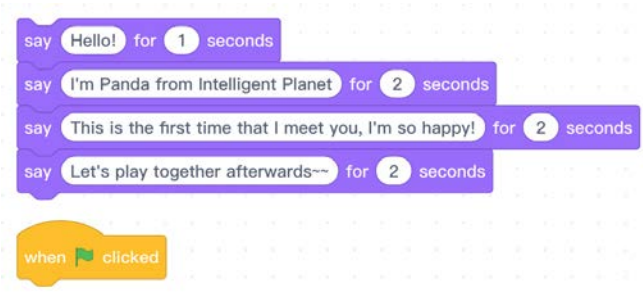
A.



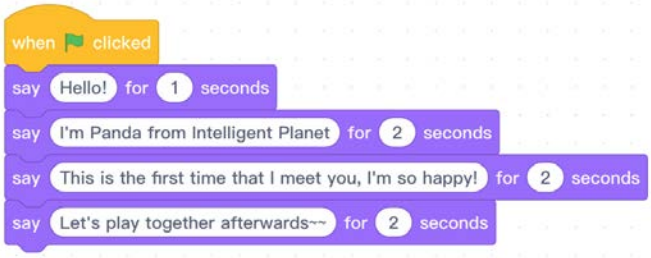
B.



C.



D.



Answer: D

(3) If you want to save the file, you will need to find the file button. Where is this button: 

?

A. Block area B. Stage area

C. Script area D. Menu bar

Answer: D