

Enhance Learning Engagement with GameMaker Across Various Subjects

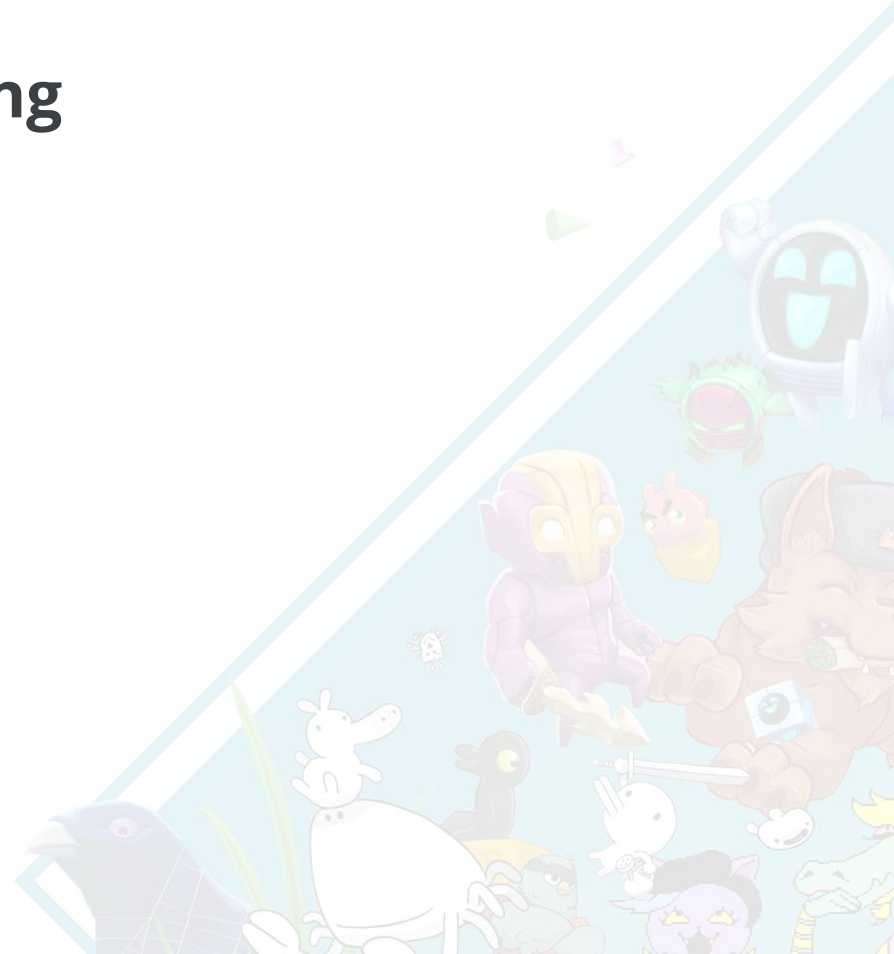


Innovative Ideas for Teaching Students with GameMaker

Frank Moody

Education Relations

GameMaker



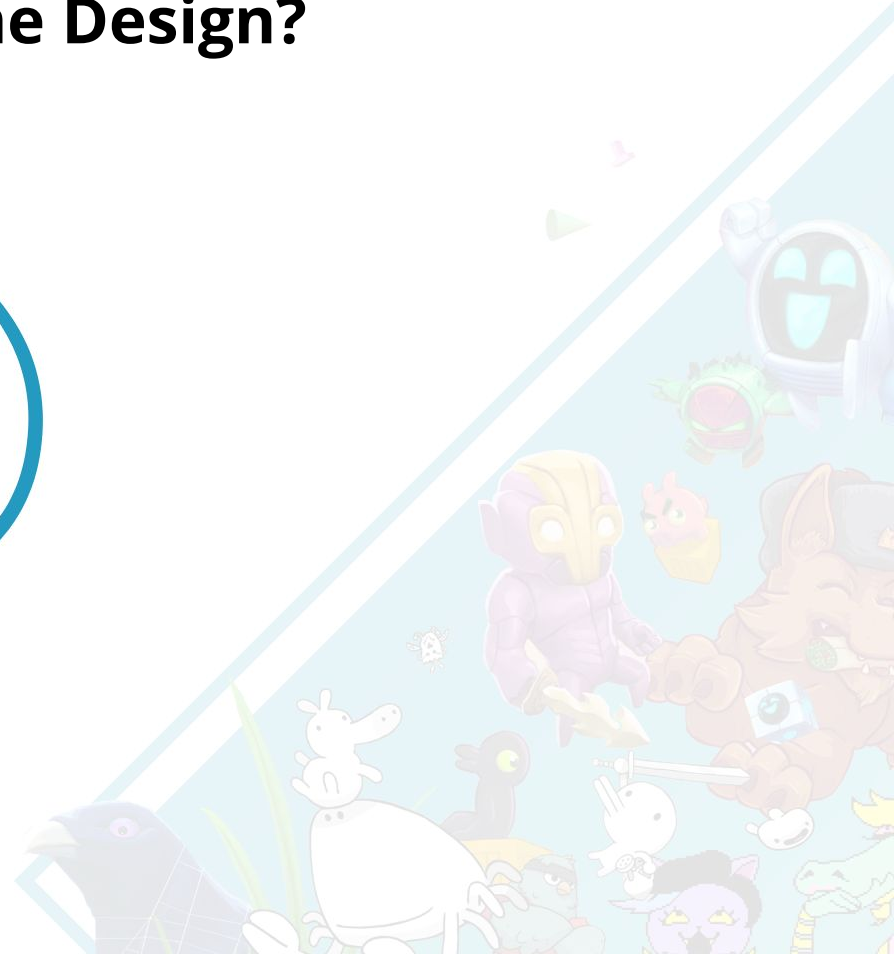
Benefits Of Game Design

- Critical thinking
- Communication
- Collaboration
- Creativity
- Time management
- Problem-solving



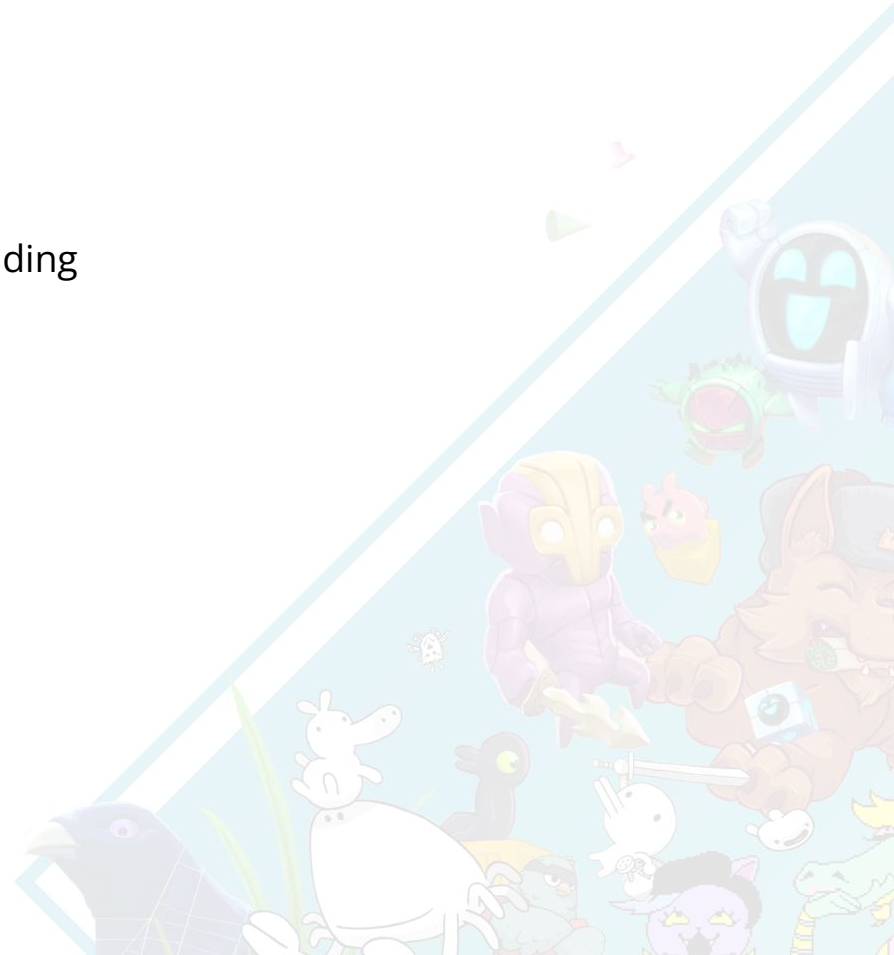
Why Should You Teach Game Design?

“My students very much enjoy the game design units that I teach. Personally, I think that game design is effective at improving **problem-solving, attention to detail and teamwork.**”



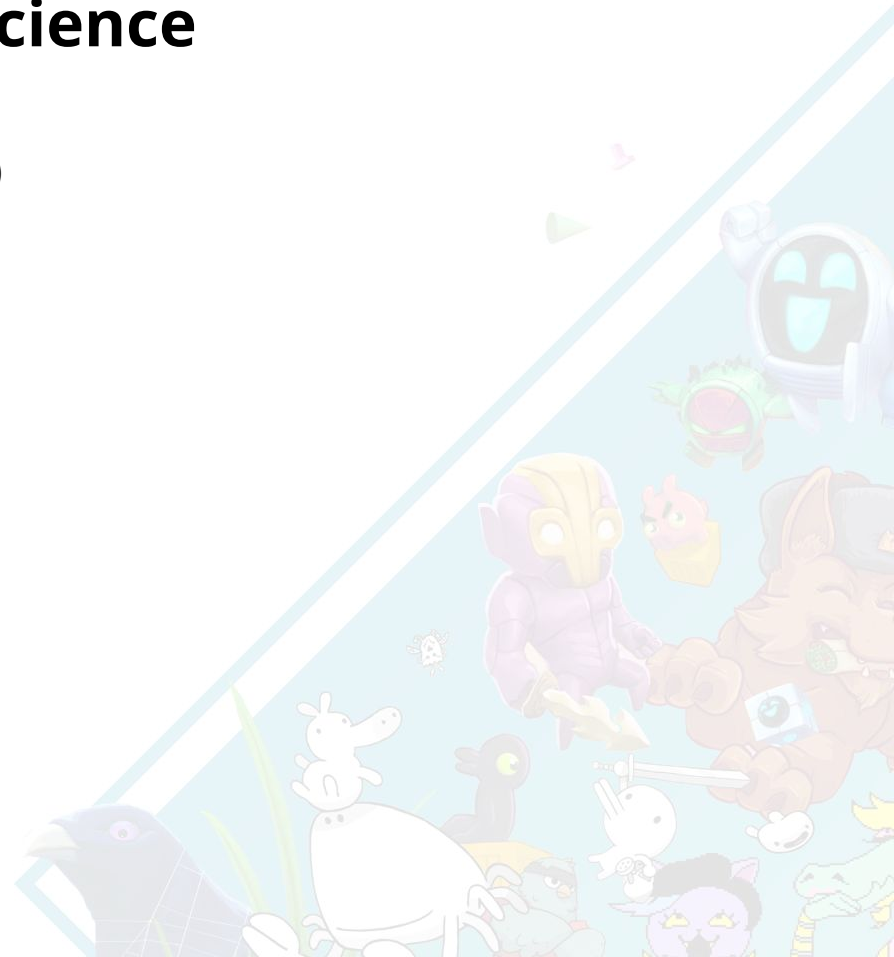
Teaching Game Design

- Make a game step-by-step using video
- Make a game step-by-step with the teacher leading
- Make a project for students to interpret



Game Design & Computer Science

- CSTA (Computer Science Teachers Association)
- Level 2 and 3 Standards aligned skills
- Algorithms and Programming
- Impacts of computing



Game Design & Humanities

Art:

- Creation of game resources
- Manipulation and movement of pixel art
- Basics of digital art



Game Design & Humanities

Music

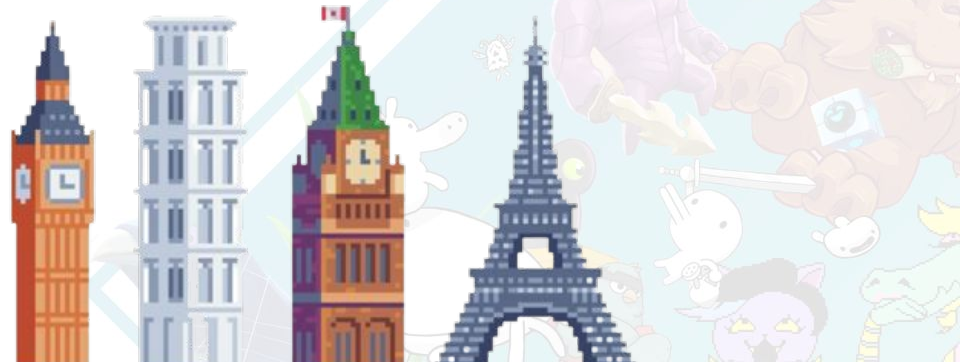
- Music resources bring games to life
- Learn use of music as an emotional motivator
- Learn use of music to build drama



Game Design & Humanities

History:

- Create a video game based on a historical event/time period
- Student's historical interpretations, narrative, and critical choices
- Reinforces cultural empathy



Game Design & Humanities

Language:

- Create dialogues using a second language
- Branching scenarios reinforce communication skills
- Reinforces cultural empathy



GameMaker

- Developed in 1999 for education by Professor Mark Overmars
- Easy-to-learn 2D game-making tool
- Visual and code languages
- Free educator resources
- Over 1,700 new users sign up every day



Game Design with GameMaker

Code

Create

- Set direction towards mouse_x,mouse_y
- Set speed to 16
- Add random_range(-4, 4) to direction
- Set rotation to direction

Set Point Direction

X mouse_x Is Relative

Y mouse_y Is Relative

Set Speed

Type Direction

Speed 16 Is Relative

Assign Variable

Name direction

Value random_range(-4, 4) Is Relative

Set Instance Rotation

Angle direction Is Relative

Code

*Create

```

1
2
3 { direction = point_direction(x, y, mouse_x, mouse_y);
4 }
5
6 { speed = 16;
7 }
8
9
10 {
11     direction += random_range(-4, 4);
12 }
13
14 { image_angle = direction;
15 }
16
17

```

1/17: 0

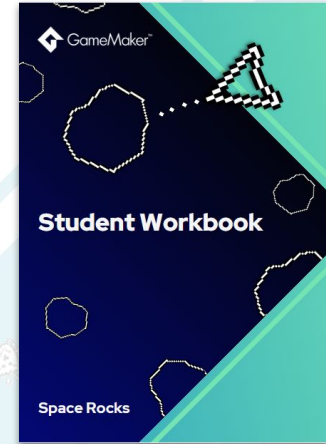
Teaching Game Design With GameMaker

“Space Rocks”

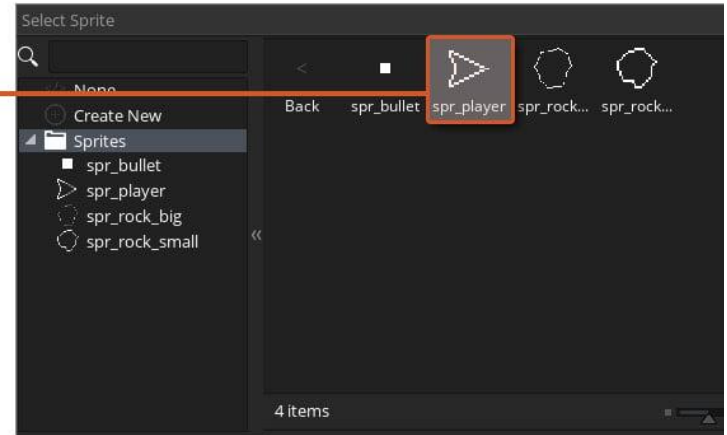
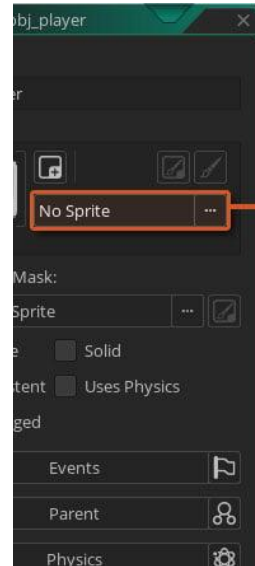
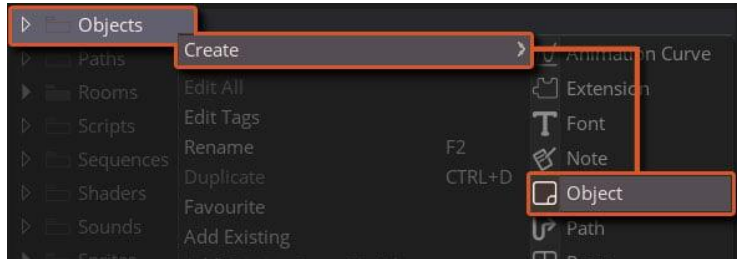
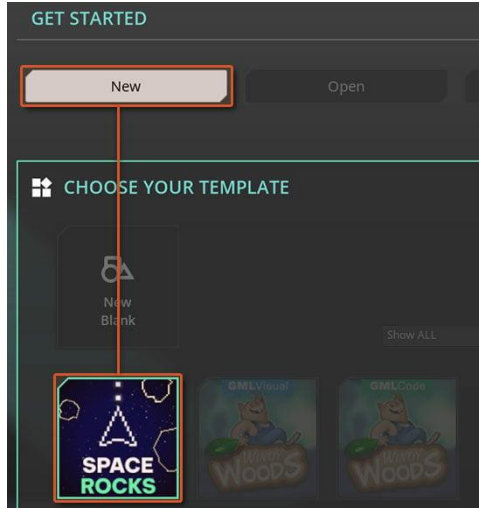
- Introduction to GameMaker
- Short tutorial of a complete game
- Video and written tutorial
- GML Visual and GML Code versions



Teaching Game Design With GameMaker



Teaching Game Design With GameMaker



Teaching Game Design With GameMaker



Teaching Game Design With GameMaker

“Fire Jump” and “Little Town”

- Complete games
- More in-depth tutorials
- Video and written tutorials
- GML Visual (Fire Jump) & GML Code (Little Town)



Teaching Game Design With GameMaker

“How to...”- Individual Project

- Short tutorials
- Answers frequently asked questions
- Support students during the creation of independent games



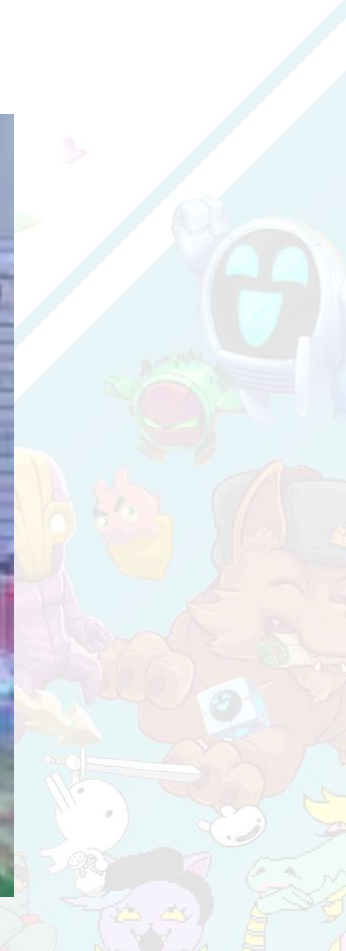
Teaching Game Design With GameMaker

More Resources

- [GameMaker Blogs](#)
- [GameMaker YouTube Channel](#)
- [GameMaker Community](#)



Teaching Game Design With GameMaker



New Space Rocks Educator Materials

Educator's Guid...
3. Teaching With GameMaker
Page 5

1

2

3

4

5

3. Teaching With GameMaker

3.1 What students will learn

By studying game development with GameMaker, students will learn how to code and program their games, test them in real time, and manage instant feedback.

The development process will teach them social intelligence, critical thinking, and problem-solving skills; they will learn how to work collaboratively, to see failures as opportunities for discovery, and the importance of iterative improvement.

See more: [Benefits of teaching game design.](#)

Educators can use [GameMaker templates](#) as a project-based learning alternative in humanities classes, too.

See more: [How to use game design in humanities classes.](#)

3.2 GML Visual vs. GML Code

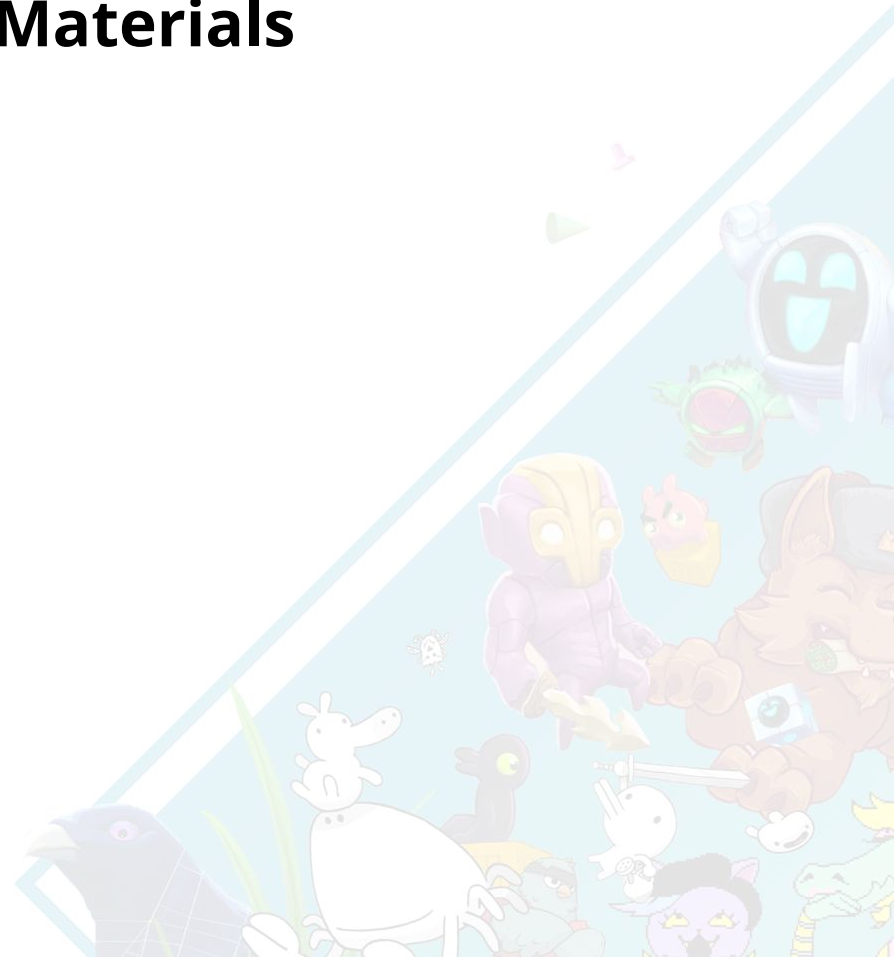
GameMaker uses its own coding language known as GameMaker Language, or GML for short. GameMaker Language comes in two different forms: GML Code, and GML Visual.

GML Code allows you to write your own code and take full control of your creation. GML Visual allows you to create your own game from pre-coded building blocks.

3.3 Helpful teaching resources

The following tools can be used in conjunction with GameMaker. Please note that some of these resources require payment to access.

These software recommendations are all GameMaker-approved third-party tools that can be used to help teach specific elements of game design.



New Space Rocks Educator Materials

Educator's Guid...

8

9

10

11

12

Before beginning Lesson 1:

- Install GameMaker onto every PC

Materials provided include:

- Lesson 1 slideshows (video and text)
- All sprites required to complete the Space Rocks template, including spaceships, bullets and rocks.

6.1.4 Concepts

By the end of Lesson 1, students will be familiar with the following concepts:

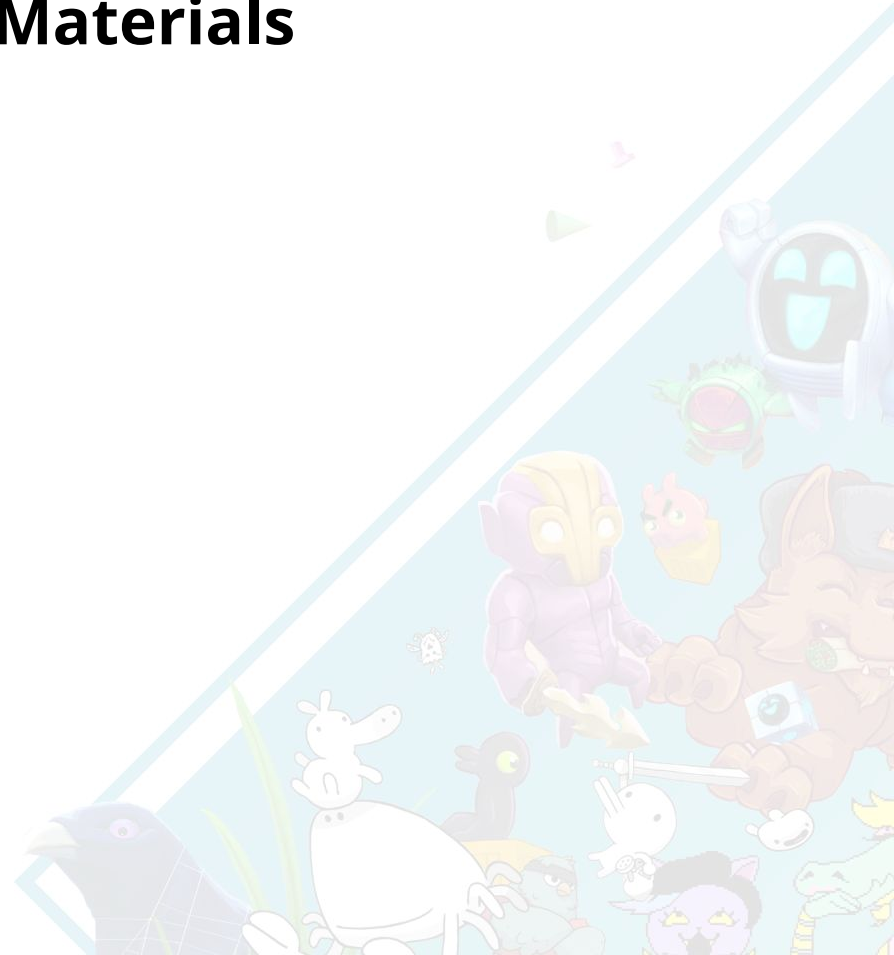
- Asset Browser
- Sprites
- Objects
- Object Editor
- Levels
- Rooms
- Room Editor
- Inspector
- Instances

6.1.5 Student Activities

Please use and adapt these activities at your discretion:

- Design a spaceship using GameMaker's Sprite Editor.
- Design space rocks using GameMaker's Sprite Editor.
- Design a background using GameMaker's Sprite Editor.
- Assign the custom sprites to their corresponding objects.
- Make a level with a custom amount of rocks placed around.
- Change the size of the player's ship sprite.
- Change the size of the level by modifying the room size.

Screenshot



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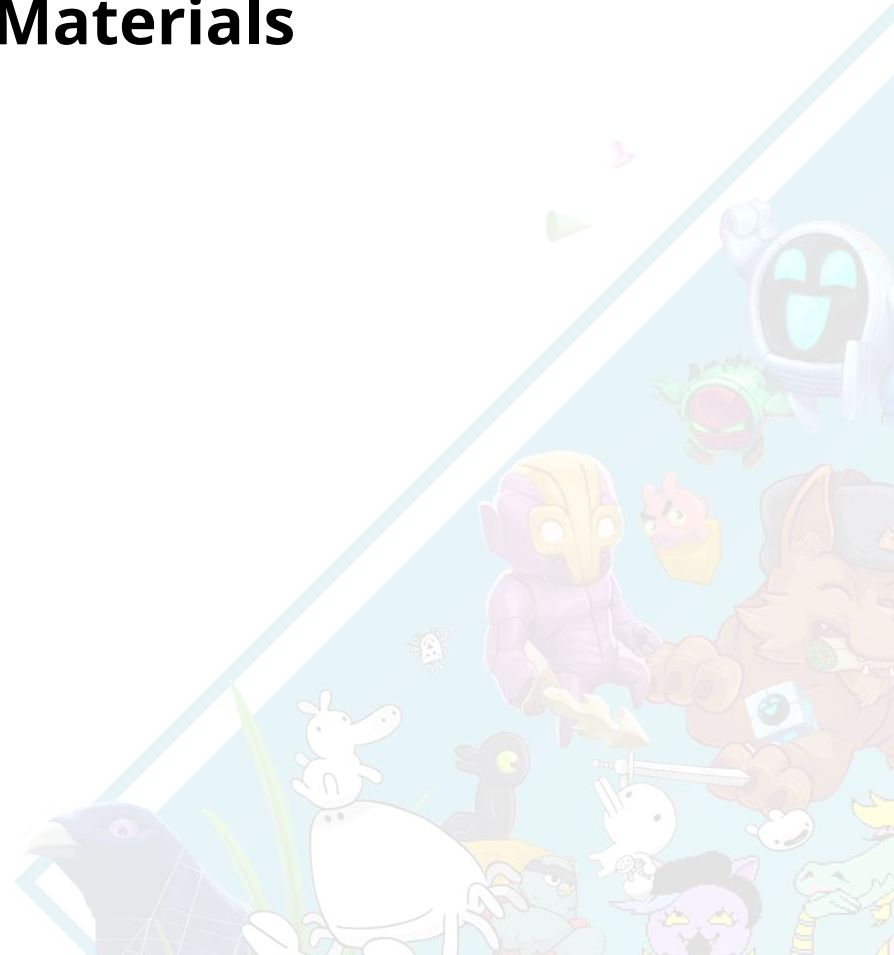
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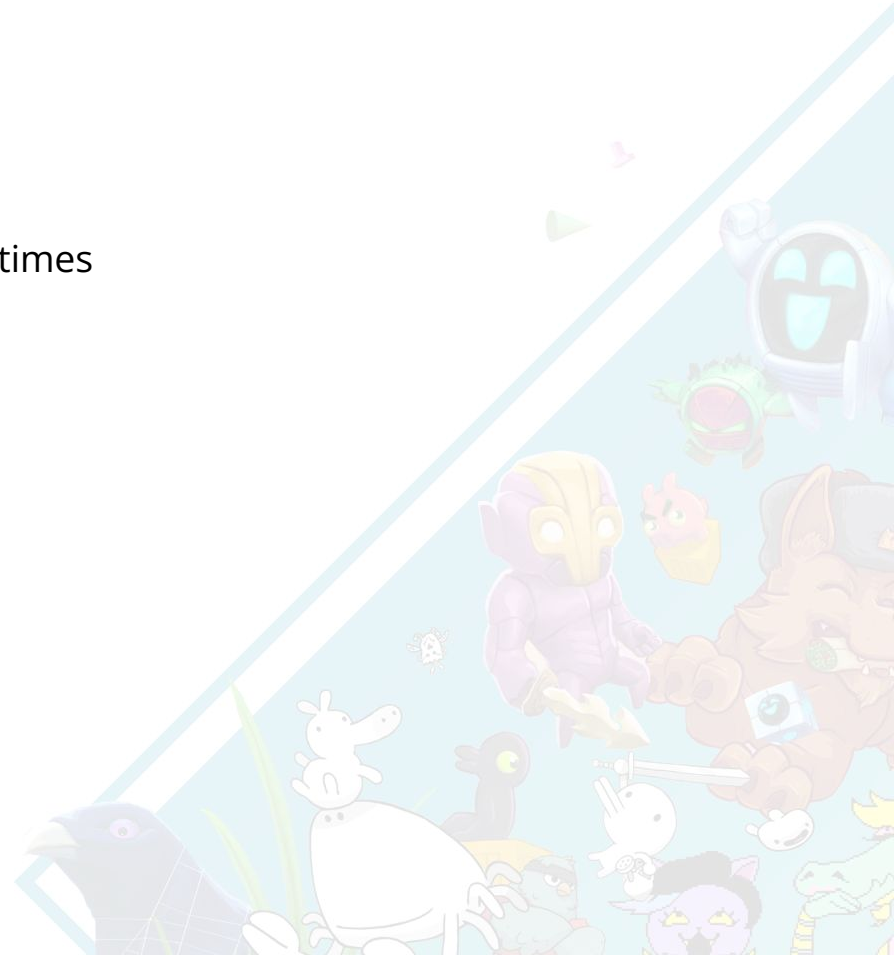
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How Do I Get GameMaker?

- Educators will receive one "seat"
- This seat can be used an unlimited number of times
- No student info collected
- Student identity protected



Educator License Options

- Educator
- Achiever



Educator License Options

- **Educator**
 - GameMaker
 - Learning Resources
 - GX.games export
 - Desktop Exports



Educator License Options

- **Achiever**
 - GameMaker
 - Learning Resources
 - GX.games export
 - Desktop Exports
 - Web Exports
 - Mobile Exports
 - Console Exports



Next Steps...

Keep an eye out for a follow-up email from kristiel@studica.com. It will include a recording of this webinar and additional info.

If you would like more **information**, have questions, would like to request a **quote**, or to **speak with a dedicated Educational Representative**, please contact Studica. We will be happy to assist you.

Contact Studica:

Email: info@studica.com or marketing@studica.com

Call: 888-561-7521 (M-F, 9am-5pm Eastern)

Thank You!

www.studica.com/GameMaker

