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GAMES AND ANIMATIONS
CURRICULUM CAPSTONE

OVERVIEW

After a student has completed Unit 2 and at least one Guided Project for each stage, they are ready to demonstrate their learning with a final evaluative capstone project. This document will outline the coding techniques that a student should be able to include in their capstone program.

STANDARDS

A student who has successfully completed all 10 stages of the Games and Animations curriculum will have demonstrated mastery of the Computer Science standards detailed in our alignment document!

THE GOLDEN FEATHER

If you assess a student's work that satisfies the criteria laid out for this capstone, you can submit their work to the Blackbird team to receive the Blackbird Golden Feather to signify their accomplishment. This award is accompanied by a Games and Animations certificate of completion for your student that they can include in their educational transcripts.

CAPSTONE CRITERIA

The capstone project should be the result of a significant amount of work, but can be any type of program a student desires. A game, an animation, a text adventure - let their creativity guide them. Students should go through an iterative process of submitting drafts and receiving feedback from their teachers before a final product is evaluated or submitted to Blackbird.

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CRITERIA TECHNIQUES

The capstone project should demonstrate that the student has learned how to effectively use the following programming techniques:

- Declaring and assigning **variables**.
  - The names of variables should reflect their purpose in the program.
- Mastery of the **canvas properties**.
  - The project should use the properties of the canvas rather than
  - hard coded coordinates.
- Complete and informative **code commentary**.
  - The project should be easy to read and all comments should accurately describe what the code does in the program.
- Effective use of numbers, strings, and boolean **data types**.
  - An example of each data type should be used in the project.
- Effective use of built-in **shape and image objects**.
  - At least one shape or image object should set all of the included properties of the object.
- Effective use of **conditional statements** (if/else if, else and switch statements).
  - At least one nested set of conditional statements should be in the project.
- Effective use of **user input**.
  - The program should recognize and use key presses, mouse movements, or a combination of both.
- Construction and use of **objects** with original properties.
  - Data that relates to a single artifact or aspect of the program should be organized into an object.
- Effective use of **for loops**.
  - The project should be complex enough to require the use of a for loop.
- Effective use of **arrays**.
  - The project should have enough data within it to necessitate the use of an array to store it.

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EXAMPLE CAPSTONE

The program named Sam Smashley in the Nest within the Blackbird Workshop is a good example of a project that incorporates the criteria listed above and would earn a Golden Feather from the Blackbird team. Encourage your students to review this project and identify where each criteria is met within the code of the program.

SUBMIT CAPSTONE

A student has completed the Games and Animations curriculum when they have:

- Completed all 10 stages in Games and Animations
- Completed at least one Guided Project for each stage
- Successfully completed a Capstone Program

Once a student has done this you are encouraged to forward their name and the title of their Capstone project to Mike at mike@blackbirdcode.com so they can be considered for the Golden Feather. Mike will review the student's progress and Capstone program. If a component of the criteria is missing, Mike will share feedback with you to pass along to your student. If all criteria are met you will receive a certificate of completion to award your student and the student's Blackbird account will be awarded a Golden Feather avatar for them to display!