Biophysics Flash Cards

Matthew Y Wang & Sharyn A Endow 2022
Computer Coding Flash Cards

Duke University
Durham, NC USA

Instructions
Print the flash cards from the templates on pages 2-3. Each page has 4 flash cards. The concept is on the left side of the template and the explanation is on the right side.

To create individual flash cards:
1) Trim the margins on the top, bottom, and sides of the page where you see the scissors icon.
2) Cut between the cards where you see the scissors icon to create individual cards.
3) Fold the cards in half at the dashed "Fold" line and align the front and back edges of each card.
4) Each template makes 4 flash cards of 2.5 x 3.75 inch (H x W). There are 8 cards in a set.
   The colored border indicates that the cards are in the same set.

Objectives & Grade Level
Teach students basic concepts about biophysics. Appropriate for middle school to high school students. Students can use the flash cards singly or in groups by studying the cards and testing themselves or others on concepts from the cards.

Acknowledgements
Designed and created as Broader Impacts with support by National Science Foundation Grant #CMMI 1660924 to SAE.

Copyright © 2022 by the Biophysical Society. All rights reserved.
Computer Coding

Computer Languages

Integrative Development Environment

Writing instructions for instruments to start and run smoothly or do tasks

Computer programming languages include

- C
- Python
- C++
- JavaScript

IDEs are software for computer coding

Python IDEs include

- PyCharm
- Spyder
- IDL

Parts of an IDE

Script name ➔ Create a new script

Editor

Console

Copyright © 2022 by Biophysical Society. All rights reserved.
What is a Script?

Scripts are lists of instructions given to a computer.
Scripts are created by computer coding.

What is a Variable?

Variables are sets of information:
- Numbers
- Strings (words or letters)
- Lists (numbers, words or letters)

Coding Errors

Coding errors are mistakes in a script.
Coding error messages will appear in red in the Console.

Coding Terms

Argument - command
Output - command results
Syntax - coding grammar

Copyright © 2022 by Biophysical Society. All rights reserved.