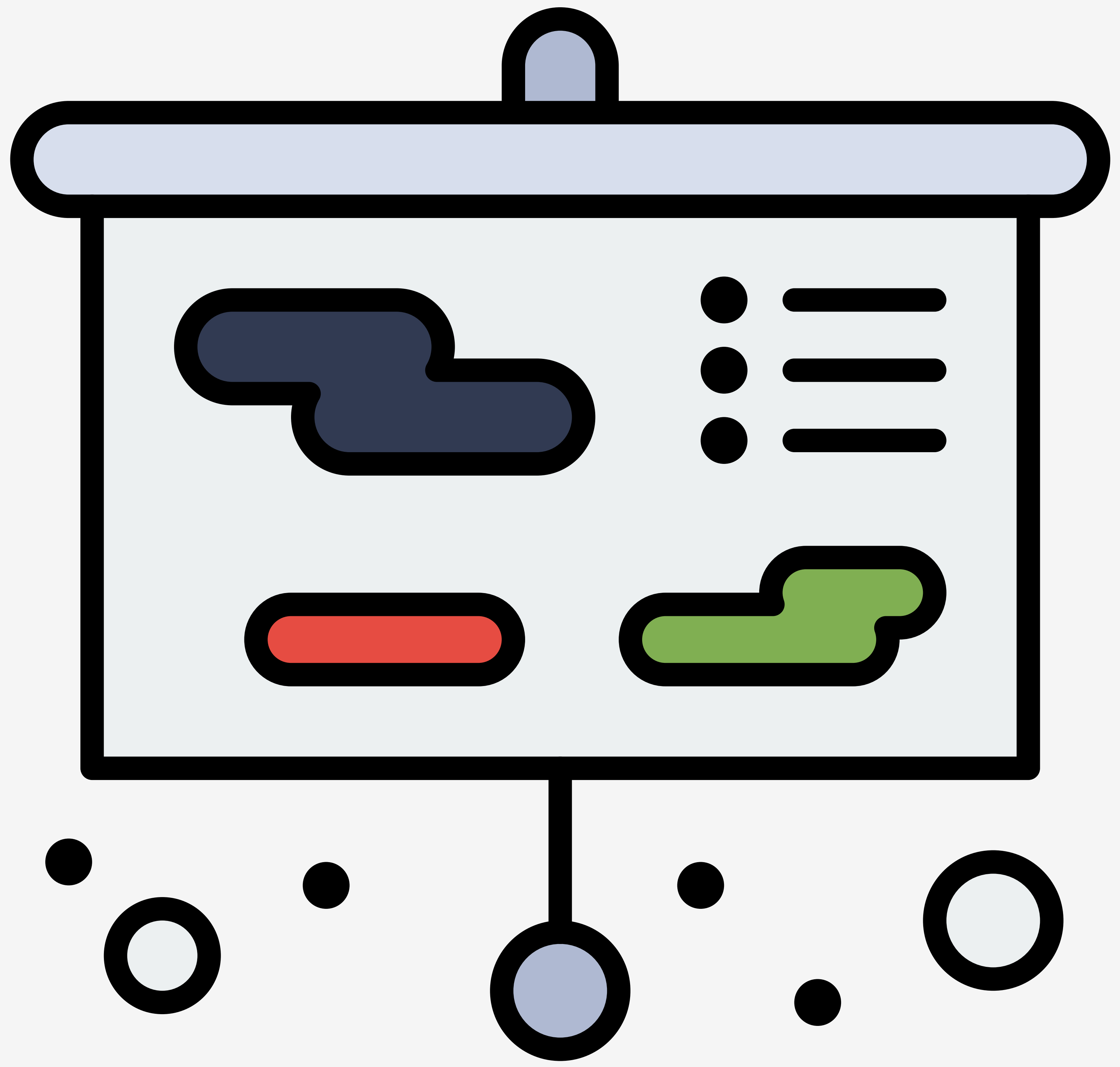
INTRODUCTION TO JAVASCRIPT

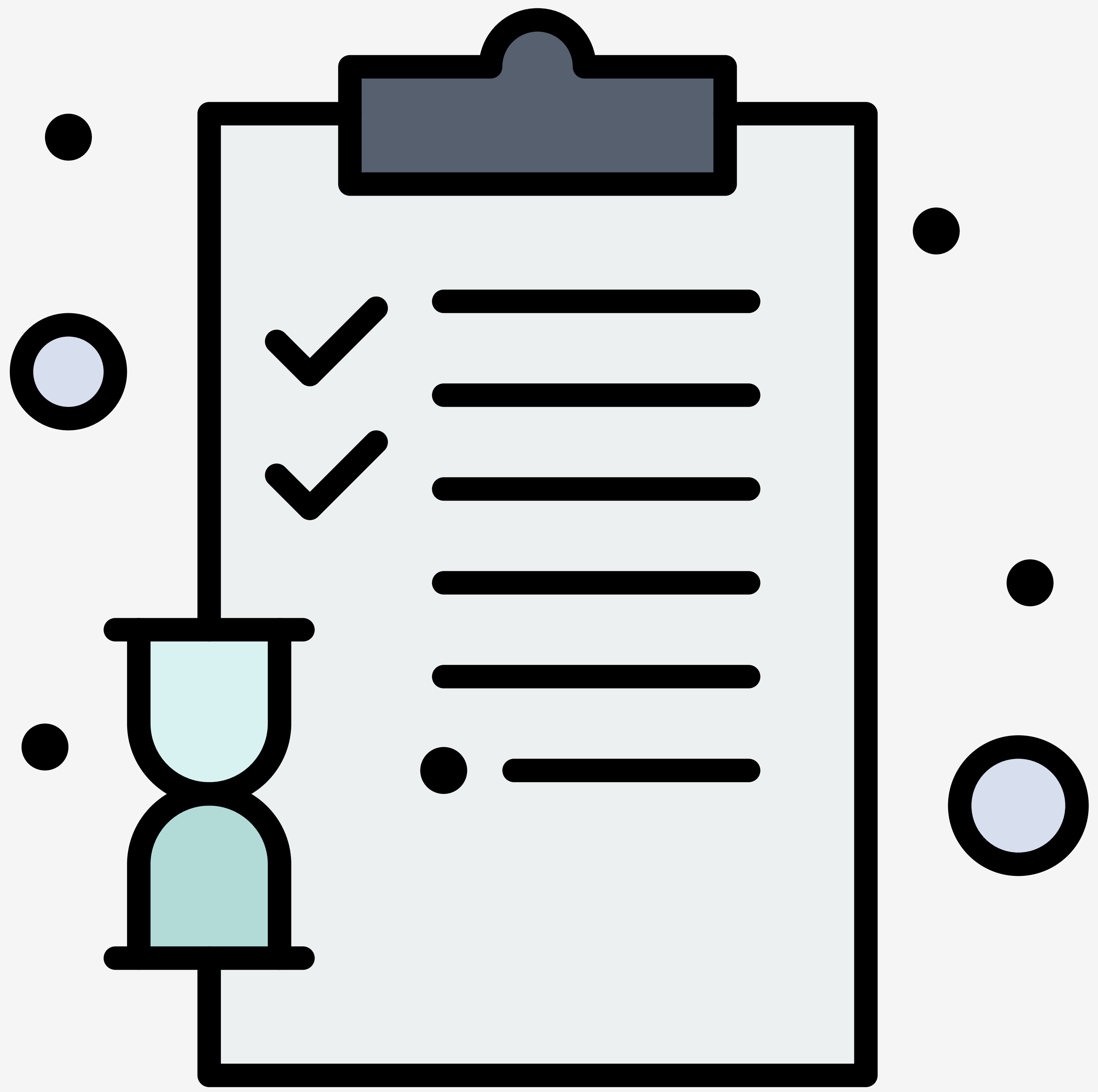
Lecture 7

TODAY'S TOPICS



- Functions
- Pseudocode
- Hands-on: Functions
- Participation: Get Your Functions On

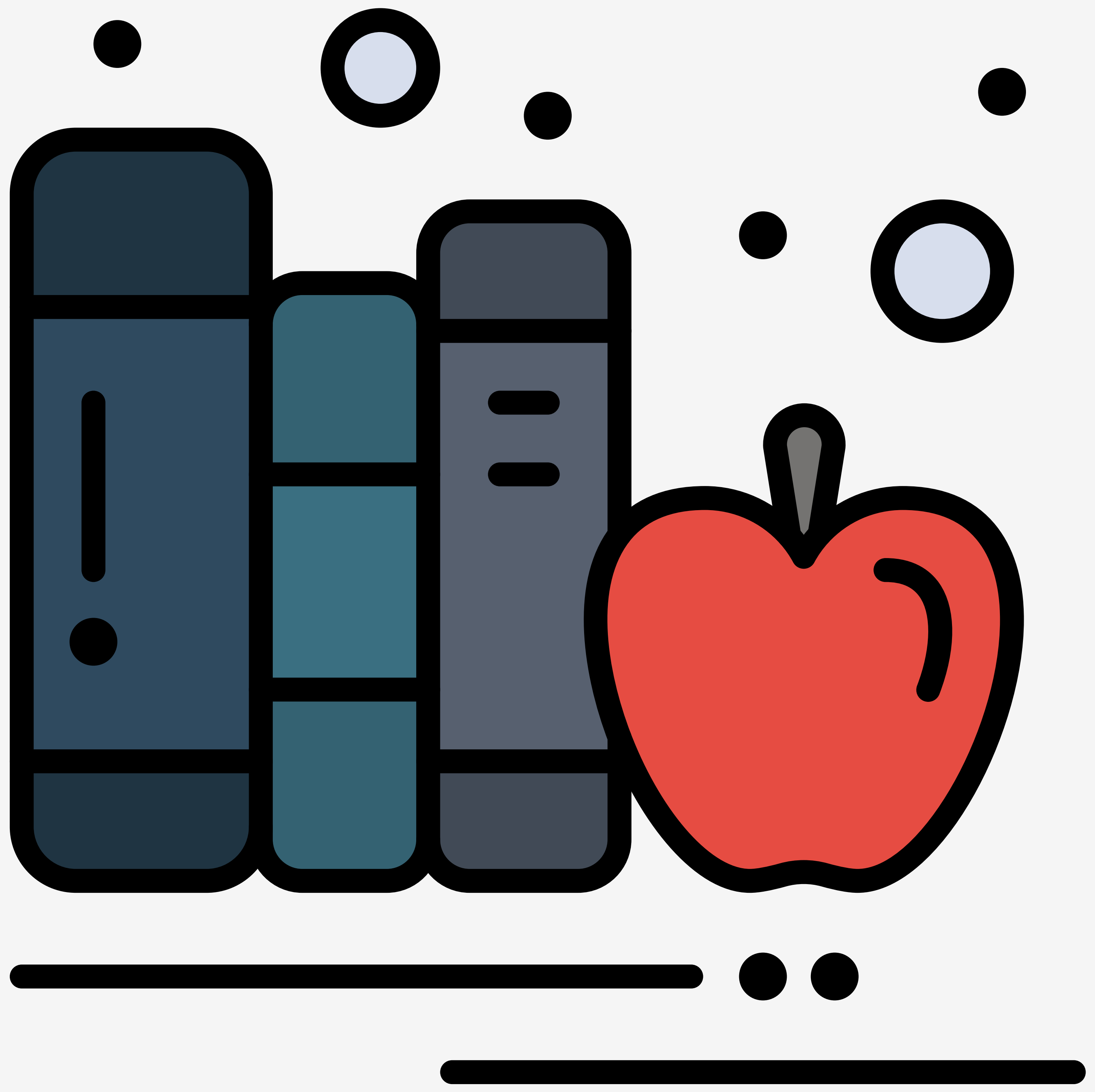
ANNOUNCEMENTS



- Sign-in Sheet

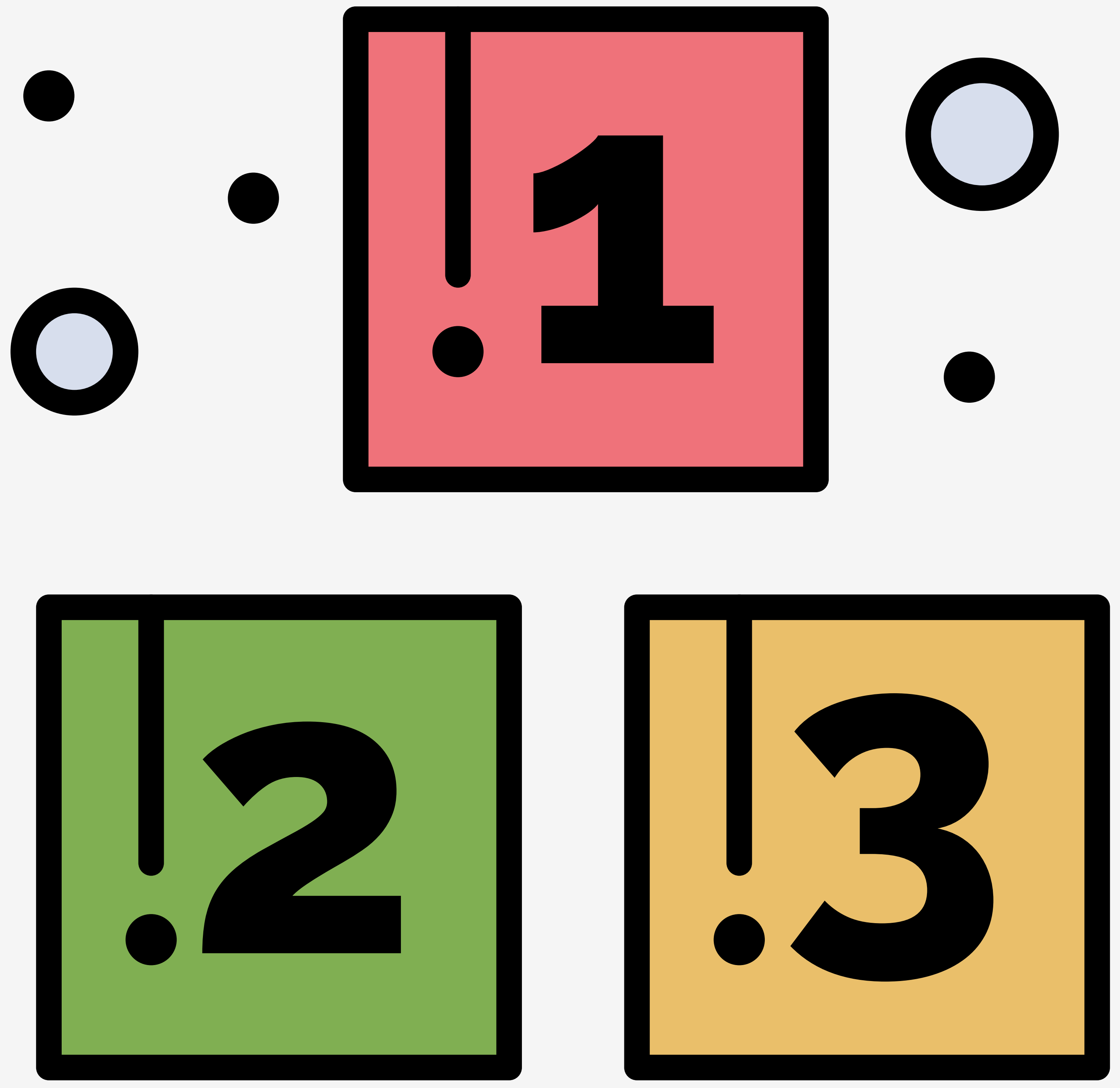
FUNCTIONS

FUNCTIONS



- Functions are predefined blocks of code that can be executed some time in the future
- Function are key component for make reusable code

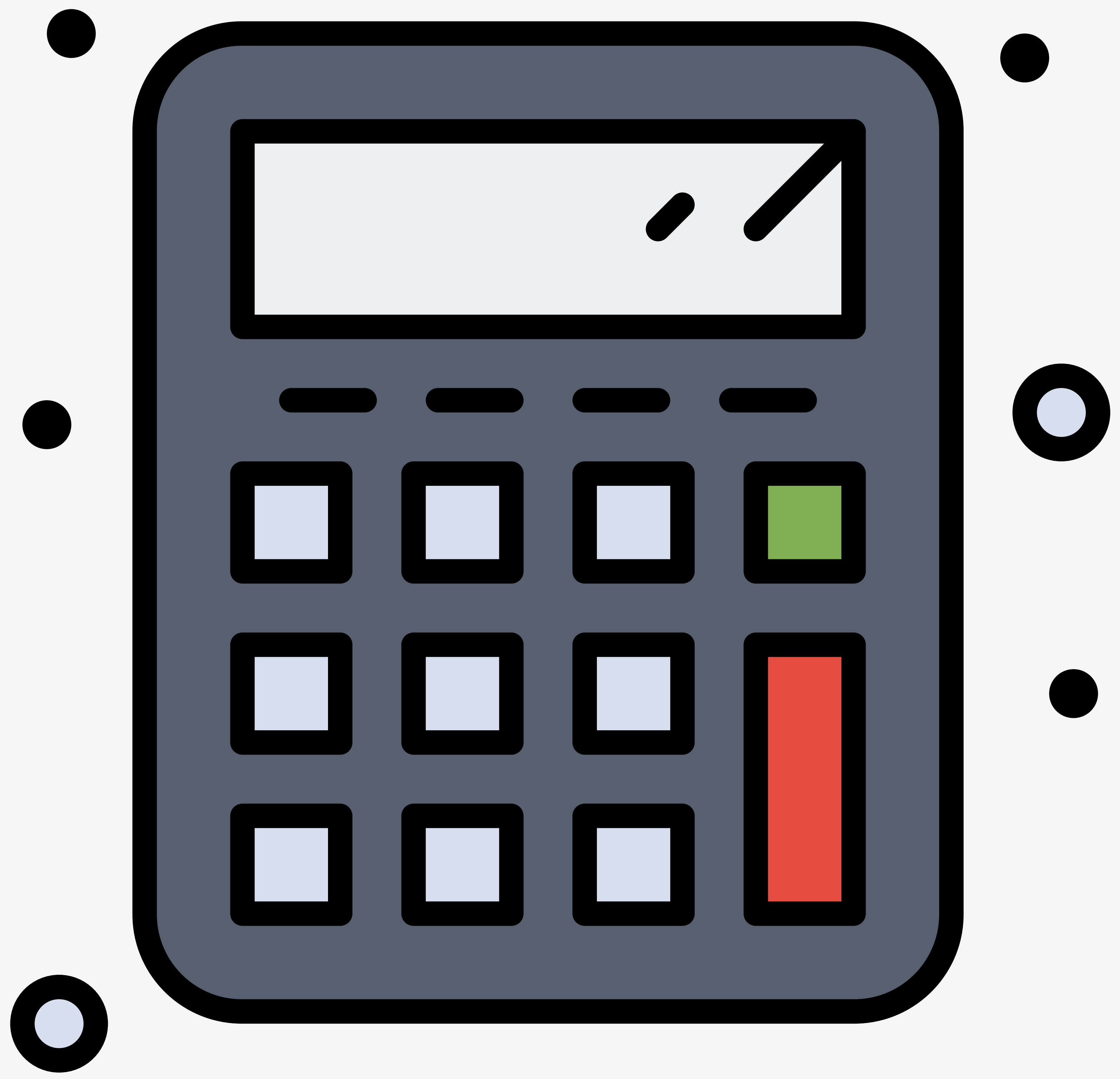
FUNCTIONS DECLARATION



- Function declaration is just one way of defining a function
- Other methods includes function expressions and arrow functions
- The structure of a function declaration look like this:
  - The `function` keyword
  - The name of the function
  - A set of parentheses (`()`)
  - A set of curly braces (`{}`)

```javascript
// defining the greeting function
function greeting () {
  const greeting = 'Hello, World!')
}

// defining the add function
function add () {
  console.log('add')
}
```

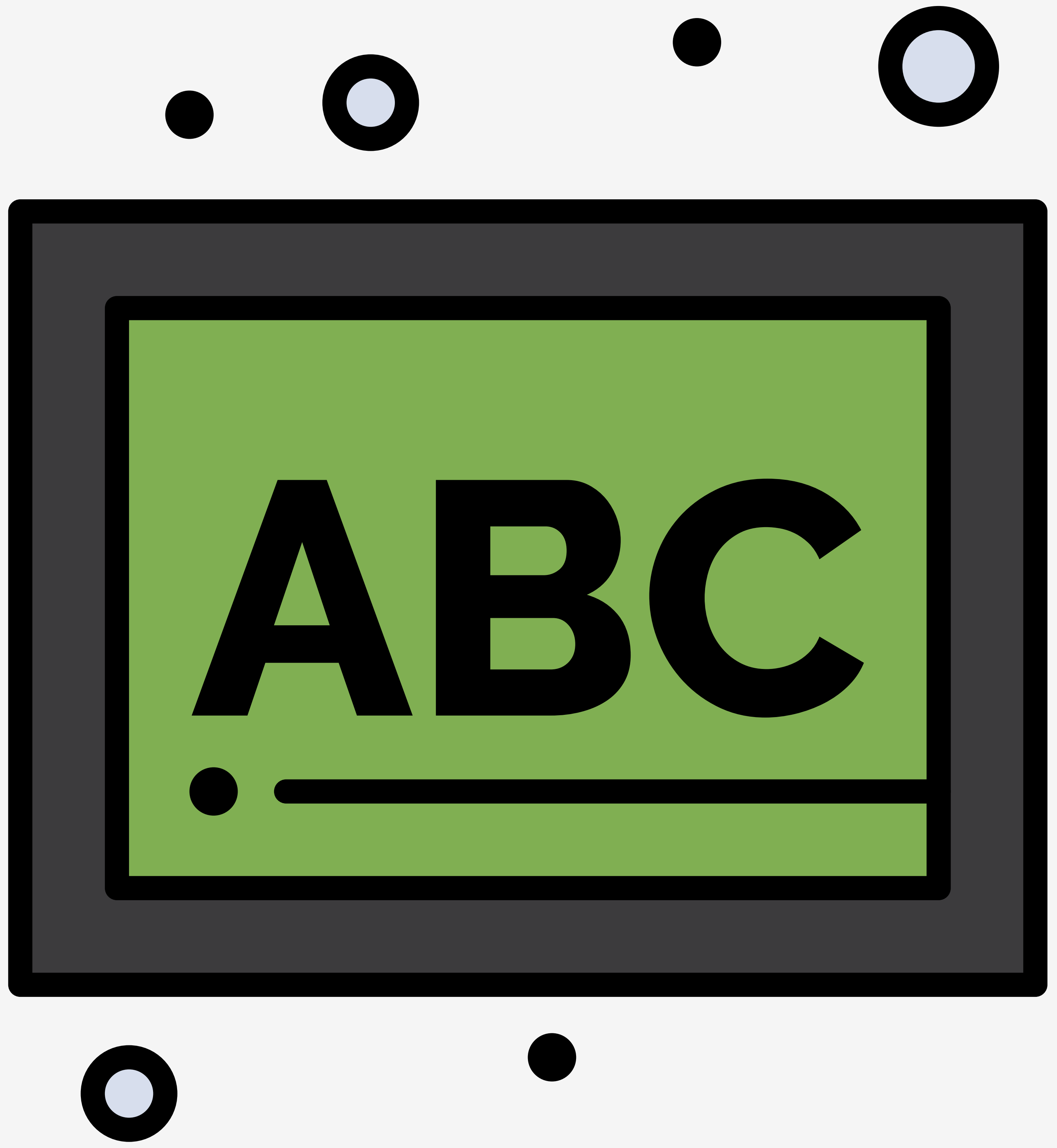
FUNCTION INVOCATION



- A function will not execute until it is invoked
- Invocation occurs when the function name is called with a set of parentheses

```javascript
// defining the greeting function
function greeting () {
  const greeting = 'Hello, World!'
}

// invoke greeting
greeting()

// defining the add function
function add () {
  console.log('add')
}

// invoke add
add()
```

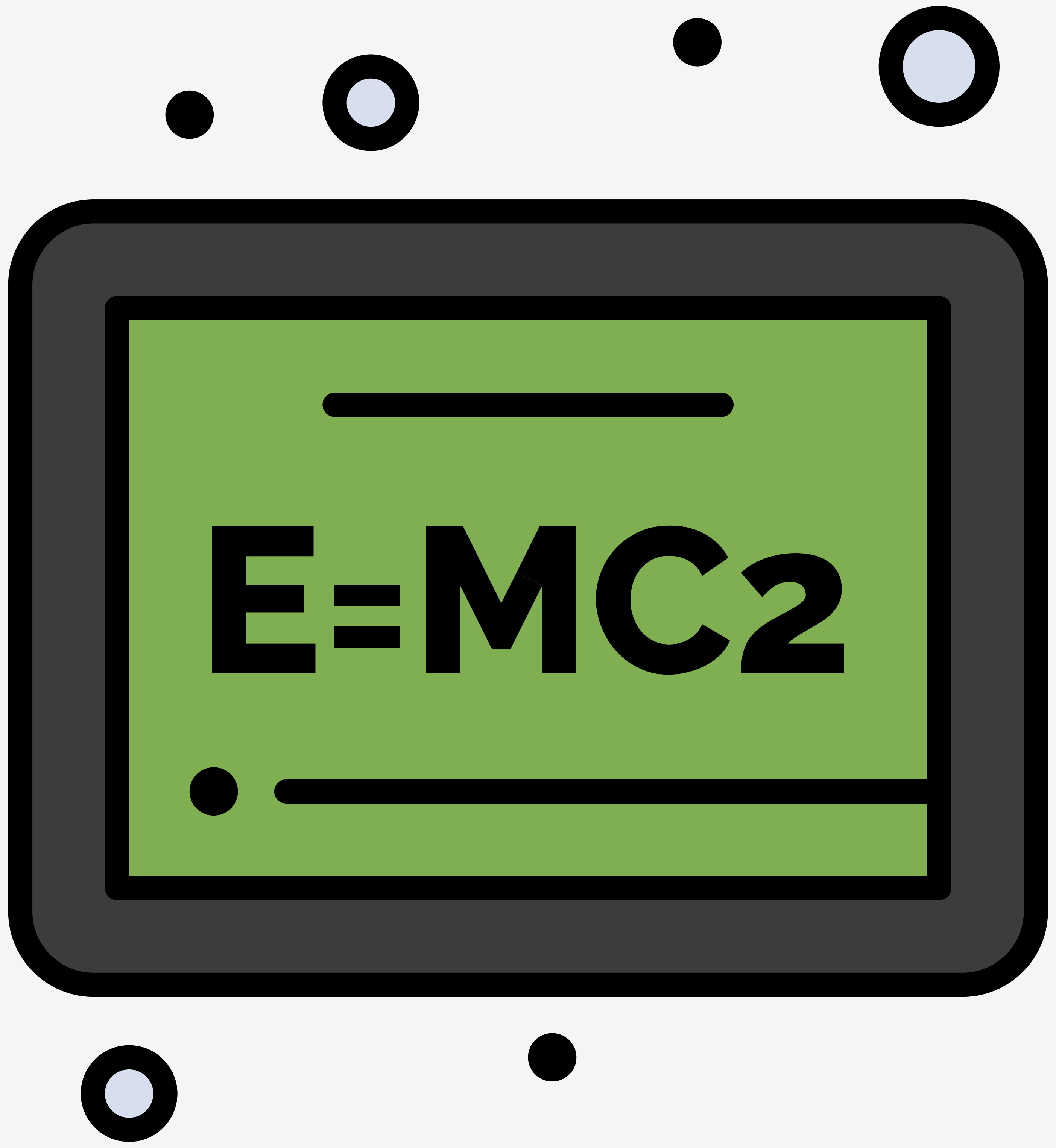
RETURN STATEMENT



- The `return` statement is used to end a function and provide the function's value
- If no `return` statement is used, a function will return `undefined`

```
// defining the greeting function
function greeting () {
  const greeting = 'Hello, World!'
}

// function without return
console.log(greeting()) // undefined

// defining the add function
function add () {
  return 'add'
}

// function with return
console.log(add()) // 'add'
```

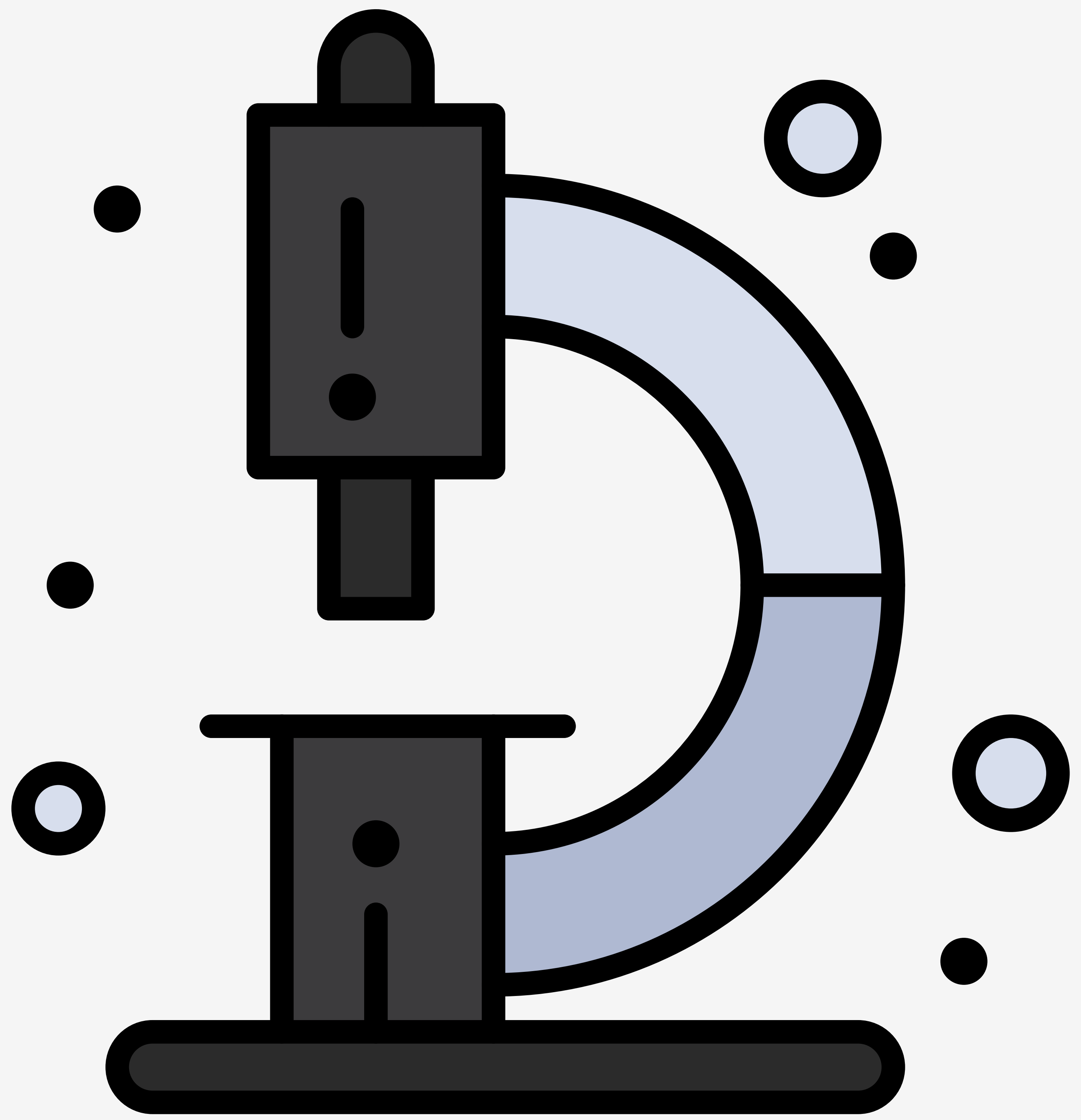
FUNCTION PARAMETERS



- A function parameter is like a variable that will receive a value during invocation
- Parameters are declared when a function is defined
- Parameters can be used anywhere inside the function
- A function can have multiple parameters

```javascript
// a function with parameters
function add (a, b) {
  return a + b
}

// invoking with arguments
console.log(add(3, 5)) // 8
```

VARIABLE SCOPE

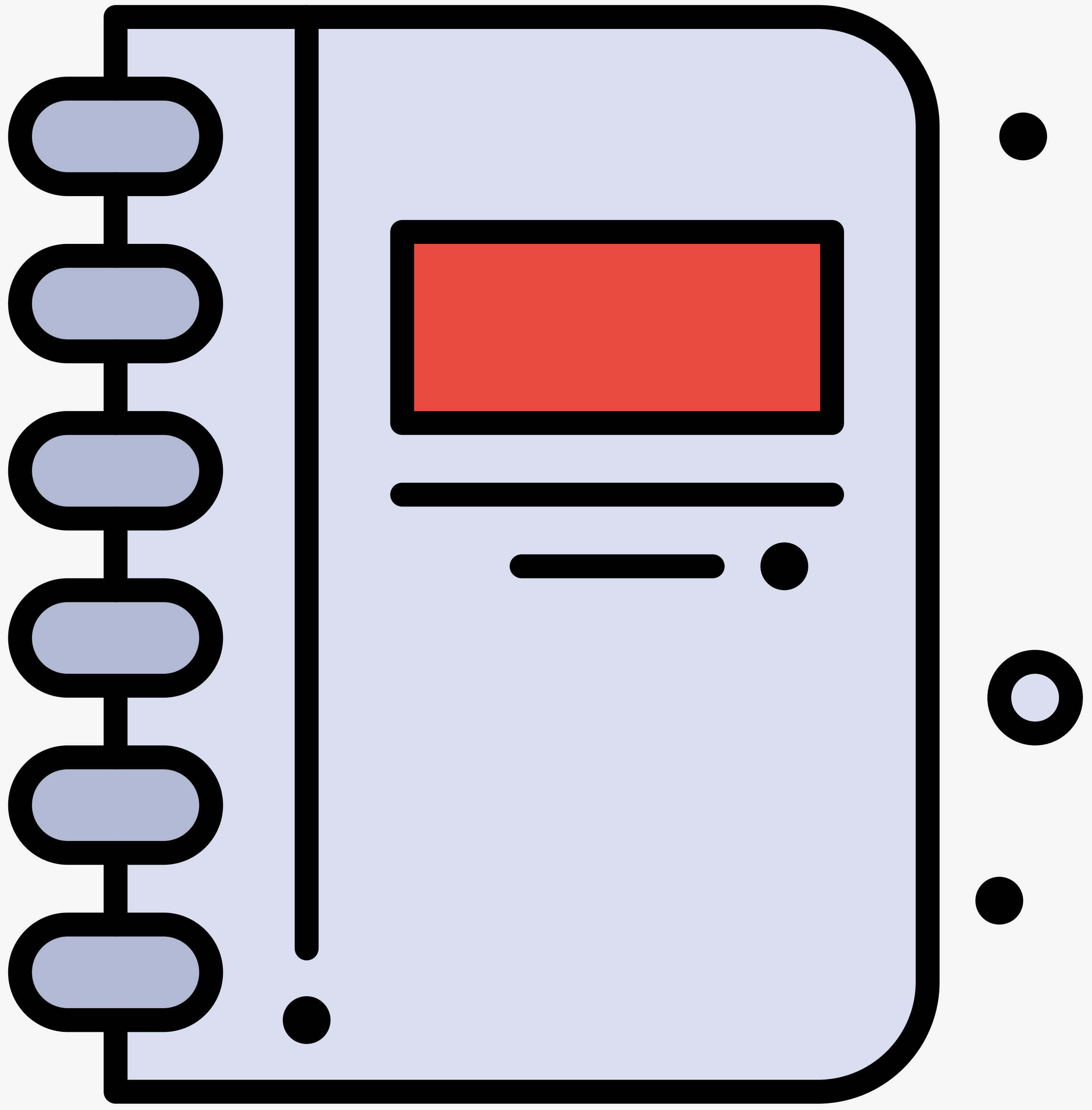


- Variable Scope refers to the visibility of variables
- Global Scope means a variable can be seen from anywhere
- Functions scope means a variable declared in a function can only be seen inside the function
- Block scope means a variable declared inside a block can only be seen inside the block

```javascript
const max = 10 // has global scope

// defining the addToRandom function
function addToRandom (num) {
  // the variable max can be used inside the function
  const random = Math.floor(Math.random() * max)
  return num + random
}

// invoke addToRandom
console.log(addToRandom(1)) // a number 1 - 10

// random is has function scope
console.log(typeof random) // undefined
```

PSEUDOCODE

PSEUDOCODE



- Pseudocode is an informal high-level description of a program.
- Pseudocode is written plain English.
- There are no standards or conventions for writing Pseudocode.
- Pseudocode serves as a Guideline to writing out a program.

```
create buy action (item)

  if item is an item that can be bought

      if gold in inventory is greater than the item's requirement of gold

          subtract the item's requirement of gold from the gold in inventory

          increase the number of item in the inventory

          respond that the player has bought the item

      else

          respond that the player does not have enough gold

  else

      respond that the player cannot buy that item
```

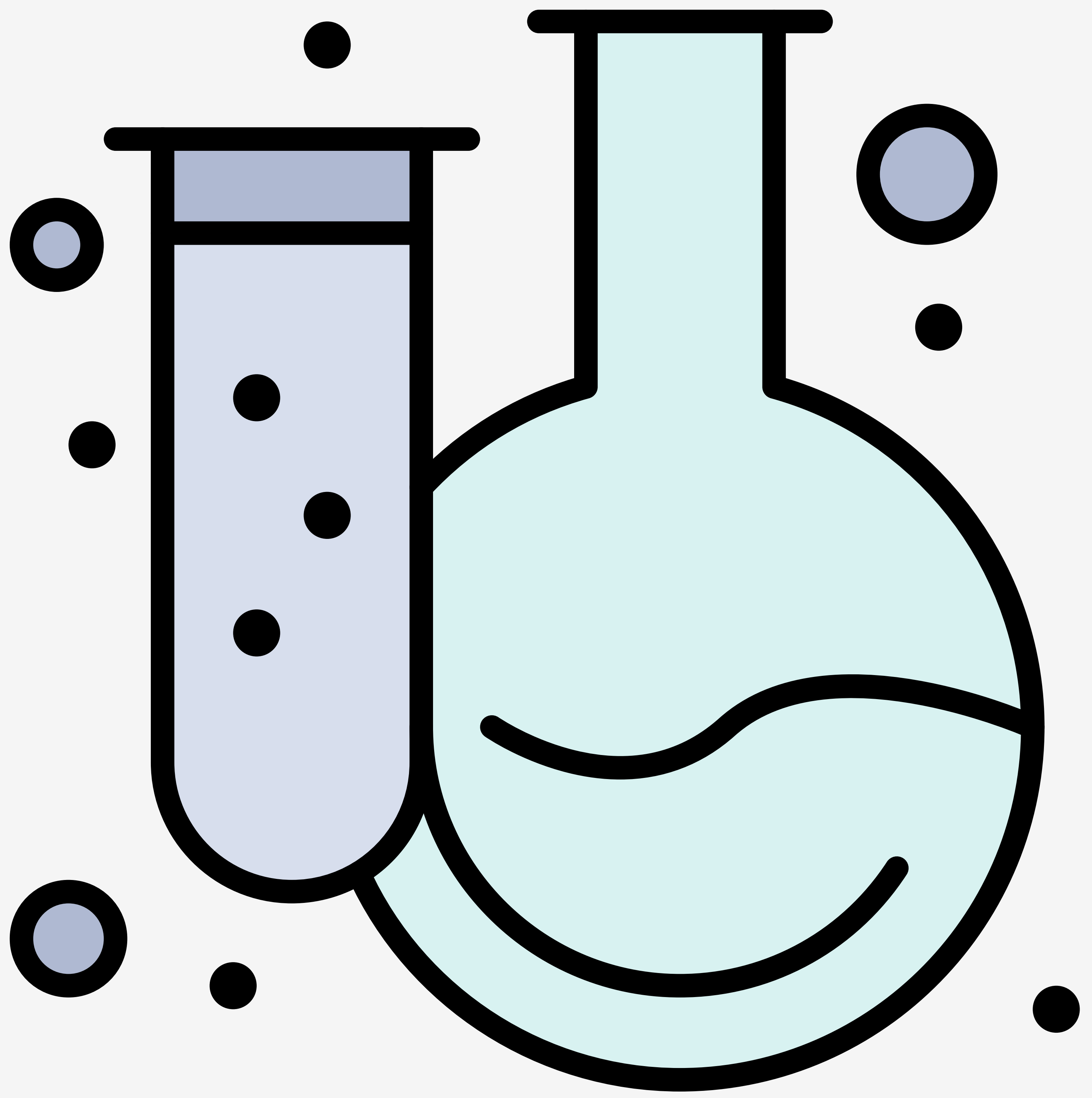
HANDS-ON: CHALLENGES

HANDS-ON CHALLENGES

- Create a `multiply` function that will return the product of two numbers. The function should take two parameters.
- Create a variable `light` and set it to the value `false`. Create a `switch` function that will toggle the value of `light`.
- Create a `sleep` function that will return "Going to sleep" if `light` is `false` and "Turn off the lights" if `light` is `true`.

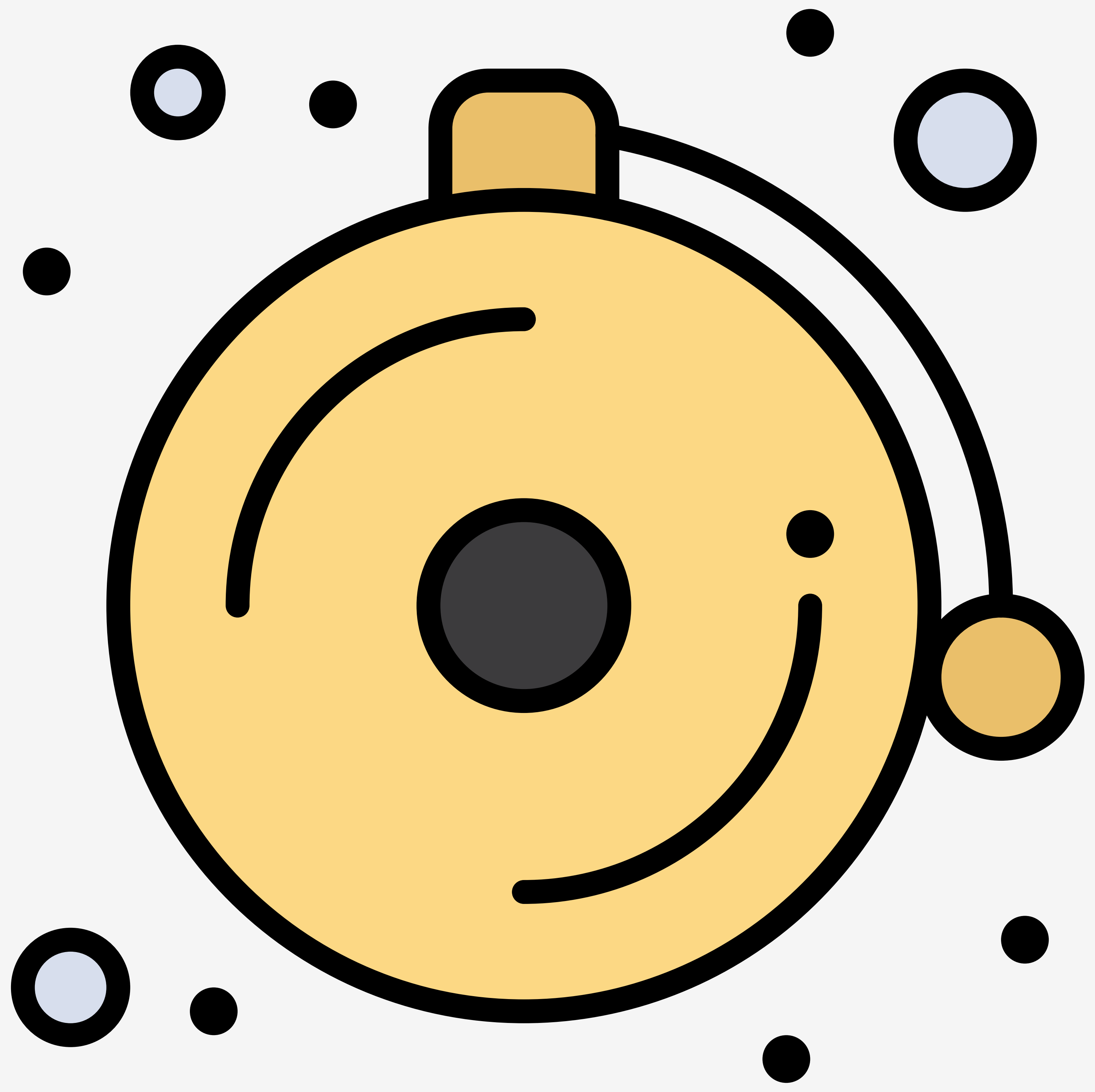
PRACTICE

GET YOUR FUNCTIONS ON



- *FORK THE PEN!*
- Create different functions to manipulate the `data` object
- Test the calculator by clicking the plus or minus buttons
- Submit the URL to your pen
- *DUE:* **Thu. Oct. 3 @ 11:59 PM**

NEXT TIME...



- Hands-on: Blacksmith
- Exercise: Functional Fishing