print("Hello, World!")

NCSS Challenge - Beginners
Week 2 Part 2
What will we cover?

- More on strings;
- Numbers and strings;
- User input with Turtle;
- Colours with Turtle.
What does this cover?

○ Define simple problems, and describe and follow a **sequence of steps** and decisions (algorithms) needed to solve them (**ACTDIP010**)
○ Implement simple digital solutions as visual programs with algorithms involving branching (decisions) and **user input** (**ACTDIP011**)
○ Recognise **different types of data** and explore how the same data can be represented in different ways (**ACTDIK008**)
1 Manipulating strings
Pedagogical Philosophy - Revise and expand!

- Here, we’re picking up on strings, which we learn about throughout the course. We both revise things they’ve already learnt, and add a bit more depth.
- This both reminds students of concepts they have already learned, and allows them an opportunity to expands their understanding.
String Revision

- Strings can be bound by single or double quotes:
  - `print('She said, "hello!" to us.')`
  - `print("Weren't you listening?")`
- Those quotation marks make a big difference!
  - `message = 'hello'
    print('message')
    → message
    print(message)
    → hello`
We’ve seen that strings can be added together (*concatenated*), but they can also be multiplied!

- `print('ab' + 'ab')`  
  \[ \rightarrow \text{abab} \]
- `print('ab' * 5)`  
  \[ \rightarrow \text{ababababab} \]
Teacher aside! - Think outside the box!

- This is a great time for you to encourage students to think critically about what they expect to happen, and to test out their theories.
  - Can you multiply a string by a number?
  - Can you multiply a string by a string? (Why not?)
  - What about division or subtraction?

- Students will be more engaged by exploring and directing their own learning, and end up understanding more!
Test it out!

Try the first question now!
Converting Numbers to Strings
Converting Numbers to Strings: the `str` function

- Just as we can change strings to numbers, we can change numbers to strings!
- This is useful if we want to print out numbers and strings ad the same time.

```python
answer = 5
print('The answer is ' + answer)
→ TypeError: Can't convert 'int' object to str implicitly
```
Converting Numbers to Strings: the `str` function

- The `str` function works just like the `int` function, taking a value as the argument, and turning it into a string!

```python
answer = 5
print('The answer is ' + str(answer))
```
Teacher Aside! Errors aren’t scary!

- Students are often worried about writing programs with errors in them. Part of this is confidence. It’s helpful to remind students that errors are a normal part of debugging, and that computers are not very smart!
- Of course, the other side of this is that errors are really helpful in debugging code! Students can be put off by the red text, and forget to actually read them!
Turtle with user input!
Let’s get straight to it!

Turtles are better when they move.
Any Questions?

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