Girls' Programming Network

Scissors Paper Rock!

Extensions!

Congratulations!

You finished your Scissors Paper Rock game!

Here's a few extensions you can do to make your game even better!

Try one (or more!) of the extensions in this book!

Scissors Paper Rock Lizard Spock

AI: The computer reads your mind

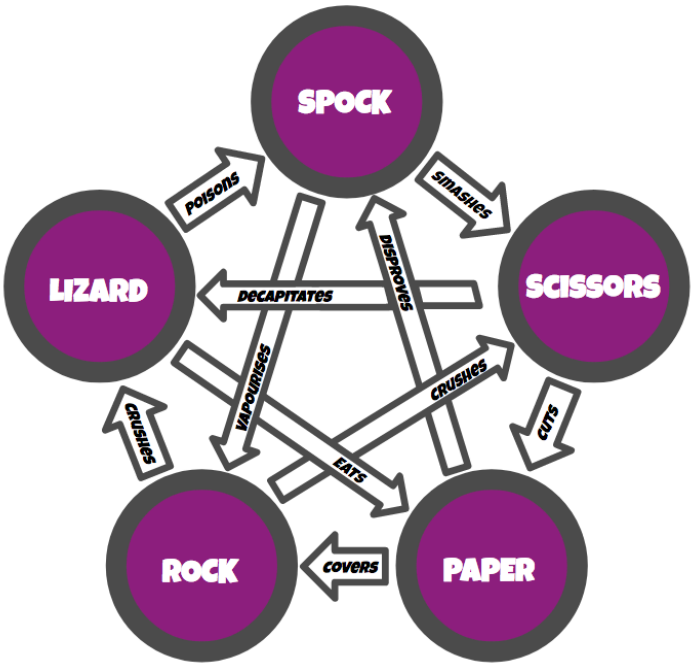
Write your own rules

Where do I start?

You can do these in any order, so choose your favourites!

8. Extension: Scissors, Paper, Rock, Lizard, Spock!

Let's add some more moves and play Scissors, Paper, Rock, Lizard, Spock! Follow the arrows in the picture to see who wins!



Task 8.1 Updated moves!

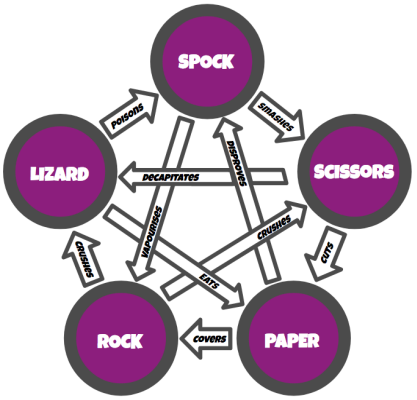
When you ask the user what move they want to play, include lizard and spock!

Make sure you give the computer the same options!

Task 8.2 Updated combos!

Update the moves dictionary to include all of the new combinations!
(There's a table on the printout you can use to figure out the options).

Human Move	Computer Move	Who Wins?
scissors	scissors	
scissors	paper	
scissors	rock	
scissors	lizard	
scissors	spock	
paper	scissors	
paper	paper	
paper	rock	
paper	lizard	
paper	spock	
rock	scissors	
rock	paper	
rock	rock	
rock	lizard	
rock	spock	
lizard	scissors	
lizard	paper	
lizard	rock	



lizard	lizard	
lizard	spock	
spock	scissors	
spock	paper	
spock	rock	
spock	lizard	
spock	spock	

9. Extension: AI. The computer reads your mind!

Let's make the game more challenging by having the computer guess what move the user will choose next, based on what the user has chosen before!

Task 9.1 Create the dictionary

Create an empty dictionary called `ai` for the computer. Store the move the human last chose in another variable, such as `last_move`.

Task 9.2 Store what happens next!

In the dictionary, add the move that the human played last round as a `key` if it's not already in the dictionary. Then store the move that the human played this round in a `list` as the `value`.

Make sure this happens every round!

Task 9.3 Get the computer to choose!

Now that the computer knows what the human played last time, get it to guess what you'll play next!

If the move the human played last is in the `ai` dictionary, choose the computer's move from the list of values. Otherwise, select the `computer_move` from the standard lists of moves!

★ CHALLENGE 9.4: Pick the winner

Our computer move will now pick the more likely move to make it tie with the human. But we want our computer to win!

Rather than storing what the human played as the value in the dictionary, store the move that would win against the human instead.

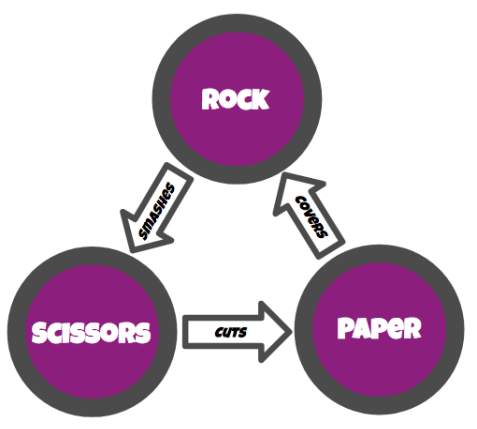
10. Extension: Write your own rules!

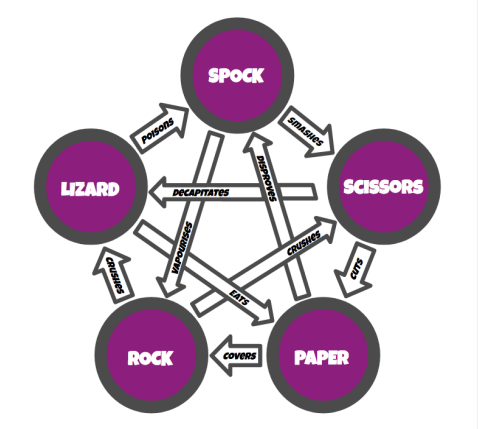
Scissors-Paper-Rock-Lizard-Spock is boring. Everyone's already playing it! Let's make our own version!

Task 10.1: Ask the user for their moves!

Imagine your own game! Maybe it's called "Cat Mouse Dog" , or "Lightning Dragon Wolf Snake Wind"! Pretty much anything you can imagine! Maybe one move always wins! Maybe one always loses!

Here's how we write the game logistics for a few versions of the game:





Draw up your idea for some game logistics here:

Task 10.1: Ask the user for their moves!

We might have lots of game ideas!! We don't want to have to write a big dictionary for each one! Let's make the computer do some of the work!

1. Use `input` to ask the user to list all the different possible moves on one line.
2. Then **`split`** those options into a list called **`moves`**!

Task 10.2: Manual winning!

Create a `for` loop (or two for loops!) that runs through every combination and have the user `input` if the winner was `human`, `computer` or `tie`.

Store the answers in a dictionary!

Task 10.3: Move it, move it!

Make sure that the computer and human are using the correct set of `moves`!

★ CHALLENGE 10.4: Work out the winners using for loops!★

Update your `for` loop so that if the user says that `move1` beats `move2`, the code knows that `move2` loses to `move1`.

We also know that if `move1` and `move2` are the same move, that its a tie! Create another `for` loop that handles all the ties.

Store the answers in the dictionary!

★ CHALLENGE 10.5: Store the game mode!★

Putting in all the game logistics instructions takes a long time! We don't want to do it every game. If we could save and load the game modes we input it would be much better!

Use a file to store the game mode! At the start of a new game as the user if they want to create a new game mode or load one from a file!