



Logo Challenges

Video scripts

Time Crimes Introduction Video

Anderson, there is an emergency break in the time continuum.

We have detected activity from Logonator, a rogue time travelling android. He is changing events in human history and we must stop him!

Earlier today, Logonator went back in time to 1903 and tampered with the Wright brothers first aeroplane. If he had succeeded, it would have set back the development of aviation for decades. We need your help to fix the other damage that Logonator has done to the timeline

The Mintour's Maze

Logonator has taken over the ruling of the ancient city of Athens and each year he sends a young child to the island of Crete to be eaten by the minotaur - the awful monster that lives in the labyrinth. But the child will grow up to be an important inventor. He must be saved!

Your mission is to lead the child through the minotaur's maze to safety to protect the future.

Hint script

- In you first mission you need to navigate your way through this Maze.
- It's helpful to turn on the grid so that we can see how far to move each time.
- The Logo commands you need to use are "fd" (go forward), rt 90 (turn right 90 degrees) and lt 90 (turn left 90 degrees)
- "fd 5 , rt 90" will make the arrow move forwards 5 units and then turn left 90 degrees. Press play to see it in action.
- That's not right! Let's correct it.
- EDIT: fd 2 rt 90
- Click Reset to bring the arrow back to the starting position, and press play again.
- Now build up your answer bit by bit until you reach the target point at the end of the maze. Each time you can correct your mistakes, add some new commands, and then click reset and play.
- Type fd 10 and play.
- This popup lists the mission objectives. And when you're ready, click the check button to find out if you got it right.
- The popup will tell you whether you have succeeded or not and show you your answer and the correct answer.

The River Rapids

Mexico, 1392 AD. Logonator has stolen the sacred Aztec golden statue from the great Pyramid at Teotihuacán. The Aztec priests believe that the rain god is angry and that the harvest will fail this year if it is not returned. You must sail up the river and return the statue to its rightful resting place.

Hint script

- This time we need to sail the boat along the river. You can choose any course you want so long as you don't hit the riverbank. You will need to use the commands "fd" (forwards), "rt" (turn right" and "lt" (turn left)
- You can estimate the angles and distances, or you can use the protractor to help.
- I think I'm going to turn right 40 degrees and go forwards 4 units.
- "rt 40 fd 5" + PLAY
- Build up the answer step by step, correcting errors as you go. I think I'll go forwards 5 instead, and then turn left 40 degrees
- Reset and play
- Once you get to the target you can click check

The Turing Test

Logonator has broken into Bletchley Park and has sabotaged the Enigma code-breaking machine, used to break the code that decrypted secret enemy messages during World War II. You need to repair the machine and make sure that the Allies can intercept enemy communications, only then can they win the war. Wire up the machine, taking care to use the right colour wires. The yellow terminals must be connected with yellow wire, and similarly for the green and red wires.

Hint script

- The first wire needs to be yellow, so you will need to set the colour to yellow
- The command that does this is the "setpc" command
- Type "setpc yellow" and "forwards 4" and PLAY
- There is some ready-made code to help you complete this challenge.
- You can jump to the starting points by typing "gotob", "gotoc".
- For example, gotob will jump to the beginning of the red wire with the arrow pointing towards 0 degrees (upwards)

Sir Francis' Flags

Francis Drake and his fleet are about to be attacked by the Spanish Armada, led by Logonator disguised as a Spanish Admiral. You must warn them! There are no telephones in 1588 so you must display the flags on the message boat. When Francis Drake sees the correct flags he will know that the Armada is coming and be ready for it!

Hint script

- There are four flags to draw in this mission. You will need to use "fd", "rt" and "lt".
- You can jump to the starting points by typing "gotob", "gotoc".
- For example, gotob will jump to the beginning of the second flag.
- The colour in which you draw the flags does not matter.

The Viking Village

Logonator has put a curse on the famous Viking, Erik the Red, giving him a terrible fear of water. This will prevent him from exploring the oceans, discovering Greenland and setting up the first Viking settlements. To lift the curse, you must answer Logonator's question and write out the answer in Viking Runes

Hint script

- Who ***IS*** the King of the Gods according to the Vikings? If you don't know the answer you might need to do a bit of research on the internet.
- You need to draw 4 runes (Viking letters) to complete this mission. Some letters of the Viking alphabet are given at the top and you must write the correct runes underneath.
- A command that will be useful is the "back" command "bk" – which doesn't rotate the arrow, but makes it move backward instead of forward.
- When you're happy with one letter you can go to the next starting position, try the next letter and click reset and play to draw them both.

Dreamtime Drawing

This time, Logonator has travelled far back in time, to 30 thousand years ago. He has destroyed some ancient Aboriginal artistic patterns – this will stop human civilisation from ever developing language and writing. You must fill in the missing shapes to make the Aboriginal art complete.

Hint script

- One way to draw a pentagon is to write all the commands out. Notice that this is "fd 6 rt 72" repeated 5 times (a Pentagon has 5 sides).
- There is a way to simplify this using the **repeat** command, it takes the form:
- "rpt" followed by the number of times to repeat (in this case 5) and then the commands to repeat go inside square brackets (in this case fd 6 rt 72).

Get in Gear

Logonator has damaged George Stephenson's train "The Rocket" before he gets to compete in the Rainhill Trials. This was the first steam train ever made and if it fails to work it will have a devastating effect on the development of the railway. You must fix the engine by replacing the missing cogs.

Hint script

- In this mission you are given some procedures to draw the cogs. They are listed on the right-hand side, called "biggear", "mediumgear" and "smallgear".
- You can't edit them, but you can use them in your code; if you type "biggear" a large gear wheel will be drawn.
- You also need to move to the correct starting point for each cog. Don't draw extra lines though! You need to use "penup" and "pen down" (type pu and pd) to lift the pen off the paper and put it down again.

Rocket Research

The year is 2146 and this is the space shuttle that first carried human beings to an inhabited planet outside our solar system. Logonator has removed the engines and warpcore generators from the space shuttle. You need to finish the rocket before take-off time.

Hint script

- In this challenge you will need to make your own procedures. One to draw an engine and one to draw a warpcore. You will then need to call these procedures several times to complete the rocket.
- To make a procedure click on the green + sign and enter the name (for example engine) and the commands.
- Here is my procedure. You can test it out by clicking play.
- When you think it's OK, you can "call" it in your main code by typing the name "engine". If it's not quite right, you can click on the pencil and edit the procedure.
- There are no goto procedures for you to use so you will need to use the penup (pu) and pendown (pd) commands as well.

The Royal Rubies – Part 1

Logonator's latest dastardly plot is to steal the rubies from Anne Boleyn's wedding ring. She won't be able to marry Henry 8th and give birth to the future Queen Elizabeth unless her wedding ring is complete. You must replace the jewels in the ring to get history back on track!

Hint script

- In this mission, there is a ready-made procedure you can use to draw one of the rubies in the wedding ring – it's called "ruby".
- You need to write your own procedure to draw a row of rubies. You must use the repeat command to do this.

The Royal Rubies – Part 2

Uh oh! Logonator is still trying to stop the wedding going ahead. He has convinced Anne Boleyn to demand more rubies on her ring, now she wants 16 instead of 4! Complete the ring so that the marriage can go ahead. Use your knowledge from the previous challenge to make a procedure which draws a row of rubies. Then use your row of rubies procedure inside a repeat loop to draw a grid of rubies and fix Anne's ring.

Hint script

- In this mission you need to re-use the procedure that you made in the previous mission.
- Remember that procedure drew a row of rubies – how can you use a repeat loop to draw the whole grid of rubies?

Taj Troubles

Logonator has demolished part of the most beautiful building in the world; the Taj Mahal. The floor has been destabilized and the building is in danger of collapsing! You must repair it for future generations to enjoy.

Hint script

- In this mission you need to make two procedures. One to draw one 4-pointed star shape and one to draw a 6-pointed star shape.
- In Logo we can make very attractive and interesting patterns by combining repeat loops and procedures.

Protect the Planet

In the future human being have spread out across the galaxy and live on many different planets. Logonator is planning an attack on one of these defenceless solar systems. You must create force-fields around the three planets to protect them from his attack and save the colonists.

Hint script

- The first planet has a force-field that is a 10-sided shape. The others look more like circles. To draw shapes approaching circles in Logo you need to move forward a small amount and rotate a small amount many times.
- Some information is given in the table to help you. The number of sides and the angle you turn each time are related – can you figure out how?

The Amazing Amazon

Back to the present day, but Logonator isn't finished yet. The Amazon rain forest contains numerous plants that can provide medicines for all kinds of diseases. Logonator is trying to destroy the flowers that will eventually provide a cure for a deadly bacterial infection that could wipe out humanity. You must grow the flowers again so that they can be used to make an antidote.

Hint script

- You will need to create multiple procedures to complete this mission. There is more than one of each type of flower, so each type of flower needs its own procedure.
- Each flower is made of several petals – you will need to write procedures to draw those too.
- Experiment with the `setpc` commands to colour your flowers and stems