We’re going to tell the story of an Astronaut called Poppy

Getting started

1. Start LXTerminal by clicking its icon at the top of the screen:

2. Change into the graft directory by typing `cd graft` then pressing Enter.

Let’s start by showing Poppy in orbit around her home planet, Willow. To tell graft to draw a circle, type: `/graf S() d+=10` graft should draw something like this:

3. S() means “step forward”

Poppy is orbiting, and ready for her mission!

Your program repeats over and over again
When Poppy fires her rockets, her spaceship spirals off into space. Draw a spiral by typing 
```
./graft 'S() d+=10 s*=1.01'
```
You should see this:

Actually, when her rockets fire the spaceship turns red! Try adding `r=100` at the beginning, so the whole line looks like:
```
./graft 'r=100 S() d+=10 s*=1.01'
```

Poppy is searching for her friend Alfie. She’s wandering all over space looking for him:
```
./graft 'b=100 S() d+=10+R()*5'
```

*b=100 means “go blue”*
Where is Alfie?

Alfie is a robot. He is confused:

```
./graft 'T(10,S) d+=90 s*=0.95'
```

T means “do this several times”

Oh no! The planet where Alfie is stuck is full of strange worms!

```
./graft 's=1 g=50 T(10,F) ^ S() d+=10+R()*10'
```

R() means “random number”

Poppy comes in to land:

```
./graft 'r=100 S() d+=10 s*=0.95'
```

F() means “split into two lines”, so T(10,F) means “split into 10 lines”
Escape!

Alfie jumps in the ship and Poppy flies away!

```
/graft 's=1  T(6,F) ^ S()  
  if(f==6, {r=100  g=0  d+=10
   s*=1.01 }, {g=50  r=0  d+=10+R()*10})'
```

Alfie is very relieved!

```
/graft 's=10  d=180  T(19, {S()  d-=10})  s=-10
  d=0  T(19, {S()  d+=10})'
```

When they get home, everyone celebrates with fireworks!

```
/graft 's=4  T(10,F) ^  d=36*R()  x=0  y=0  r=R()*10
  g=R()*8  b=R()*3  T(40,S)'
```

Poppy saved the day!
Try re-running one of the animations above, but put \textbf{z=20} at the beginning (after the first ‘ character). Now try \textbf{z=1}. What does \textit{z} do?

Change the colours of your favourite animation, changing how much red, green and blue colour there is by adding something like this: \texttt{r=50 b=25 g=90}

Can you write your own program to draw a rectangle? Start with the square program (number 7) and try adapting it.

This program makes a pretty animation: \texttt{./\texttt{graft} ‘F() S() d+ = 10 + R()’}

Can you understand how it works? Remember: “F()” means “split into 2 lines”.

Which animation did you like best? Try adapting it to make it even better. If you’re looking for ideas, try reading the \texttt{graft} README file!

You can find out more about \texttt{graft} at https://github.com/andybalaam/graft - if you make a good animation, create an issue to tell us about it!