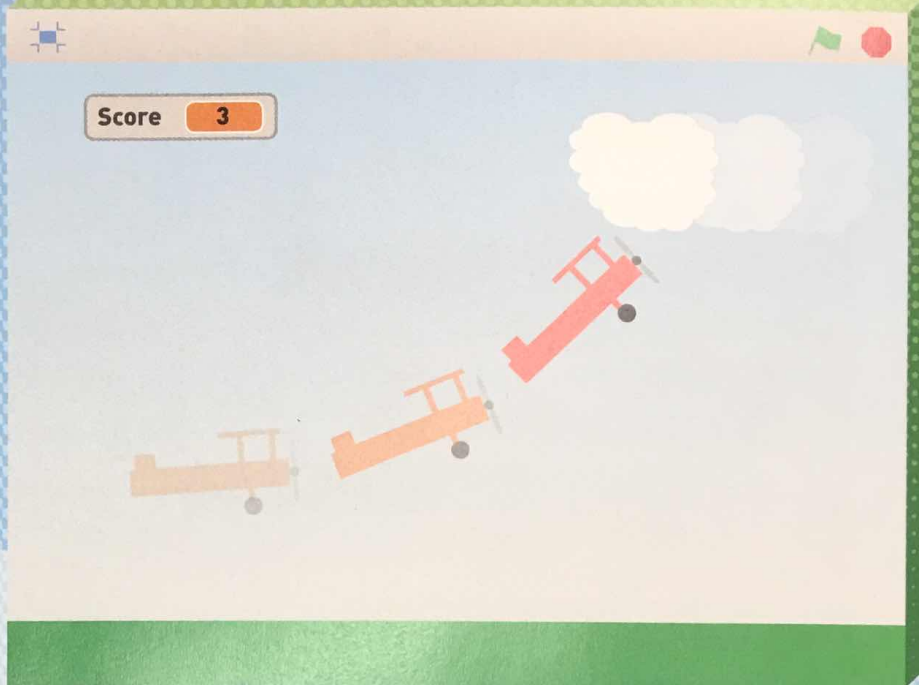
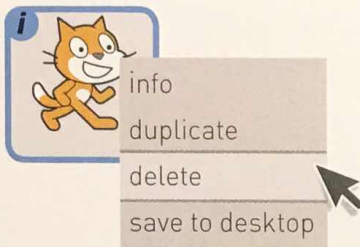


UP IN THE CLOUDS

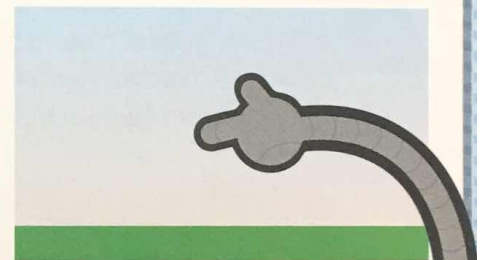
In this game, you get to fly a biplane. The plane is controlled by rotating it, in a similar way to the car in *Drive Me Crazy* on page 18. Every time the plane flies through a cloud, the score goes up by one point. But to make the game harder, as the score goes up, the plane gets faster and faster. We will use animation to make the propeller turn.



- 1 Start a new Scratch file. Delete the cat sprite first:



- 2 Click **Backdrops** and draw the sky and ground using the **Rectangle** tool.



- 3 Start the plane by clicking the **Paint new sprite** button.



Choose the **Rectangle** tool.

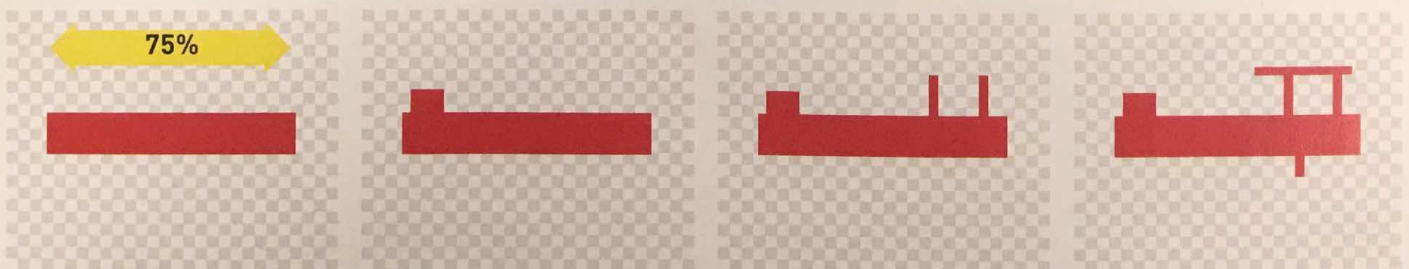


At the bottom of the screen, click the shaded rectangle. Click red.



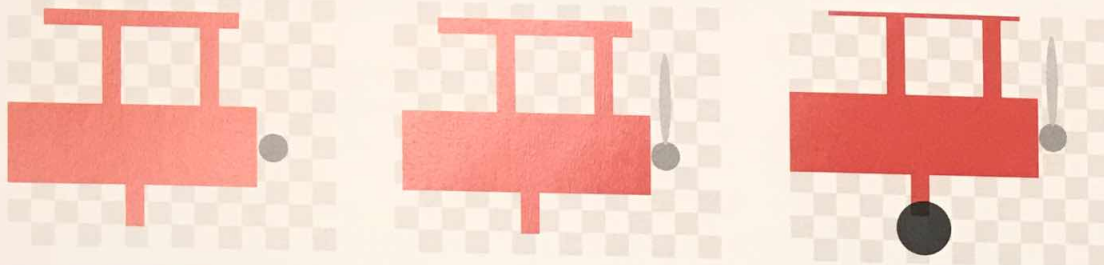
Don't draw any clouds yet!

Draw six red rectangles. Make the first one $\frac{3}{4}$ of the width of the Drawing Area:



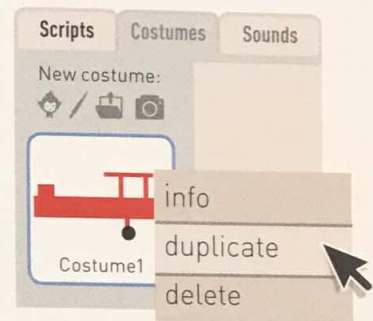


4 Click the **Ellipse** tool. Draw half a propeller and the wheel.



5 Next we will create another **costume** for the biplane to make it look as if the propeller is rotating.

To do this, turn back to page 27 and follow the instructions in the **Creating animations** box.



6 Drag the following code blocks to the Scripts Area. You will need to create a variable called **Score** in the **Data** group. For help with x and y coordinates, or for setting the color in the **Touching color?** block, turn to page 11.



	Run code when the green flag is clicked.
	Set score to 0 at the start of the game.
	Shrink plane to 15%.
	Start with the plane facing right.
	Start the plane at the bottom of the screen on the left. (You may need to adjust the y value so the plane never starts on the ground.)
	Keep running this code until the plane hits the ground:
	Show the next costume (the next animation picture).
	Move the plane 2 steps. As the score goes up, the plane will move faster.
	If the plane gets to the right of the screen then:
	Move it back to the left-hand side.
	This code runs when the player crashes: Show a sentence joining "You scored" and the Score variable.

7

Add these two groups of blocks to make the plane rotate left or right when the arrow keys are pressed:



```

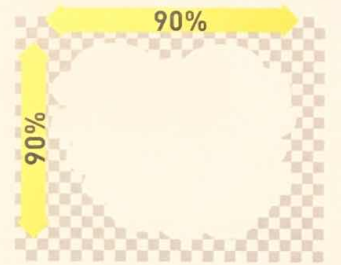
when [up arrow] key pressed
  turn 15 degrees

when [down arrow] key pressed
  turn 15 degrees

```

8

Click **Paint new sprite** and draw a big cloud, taking up most of the Drawing Area.



9

Click the **Scripts** tab. Add this code to the cloud sprite. You will need to choose the **Water drop** from the Sounds Library. Click on the **Sounds** tab in the middle of the screen, then click **Choose sound from library**. Scroll down for the **Water drop** and click **OK**. Then use the **Play sound** block drop-down menu to select your **Water drop**.



```

when [green flag] clicked
  set size to 20%
  forever loop
    move -1 steps
    if touching [edge] ? then
      set x to 216
    if touching [Sprite1] ? then
      go to x: 216 y: pick random 120 to 140
      change [Score] by 1
      play sound [water drop]

```

- Run code when the **green flag** is clicked.
- Shrink cloud to 20% of its size.
- Loop the following code forever:**
- Move the cloud left.
- If the cloud gets to the left edge then:**
Move the cloud to the right side of the Stage.
- If the cloud touches the plane sprite then:**
Move the cloud to a new random position. (You may need to adjust the y value so the cloud never appears on the ground.)
Make the score go up by 1.
Play a sound effect.

Now test your code.

EXPERIMENT

- What happens if you change the number 15 in the **Turn 15 degrees** block (in step 7)? Try small numbers like 1 or 2 and big numbers like 30. Does this make it easier or harder to play the game?

when **up arrow** key pressed

turn **15** degrees

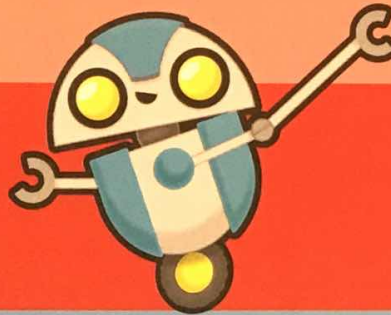
when **down arrow** key pressed

turn **15** degrees

- Change the number -1 in the **Move -1 steps** in the code that controls the cloud. Try larger or smaller numbers. What happens if the number is positive instead of negative?
- Change the values in the **Pick random -120 to 140** block in step 9. What happens to the cloud?

if **touching** **Sprite1** ? then

go to x: **216** y: **pick random -120 to 140**



CHALLENGES

- Change the scoring system to make the score go up by 10 points every time you hit a cloud.
- Compose a tune for the start of the game, using **Play note** blocks.
- Add trees and buildings to the background to make your game look more exciting.
- Add a timer to your game. Turn to page 31 for hints on how to do this.
- Add an animation to your cloud, so it appears to shrink and grow. Turn back to page 27 for a refresher on how to make animations.
- Try to make the cloud move in a random direction. Hint: In the code shown in step 9, add a **Point in direction** block above the **Change score** block. Use a **Pick random** block to set the angle.
- Design a flying or swimming game of your own. How about making a shark swimming through floating seaweed?

