

# Freewheeling

Name(s): \_\_\_\_\_  
 \_\_\_\_\_

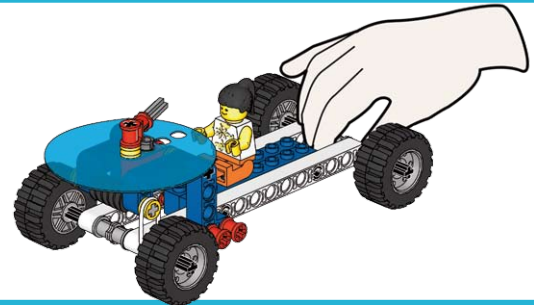
**Which will roll furthest? Heavier or lighter carts, with bigger or smaller wheels? Let's find out!**



## Build the Freewheeler

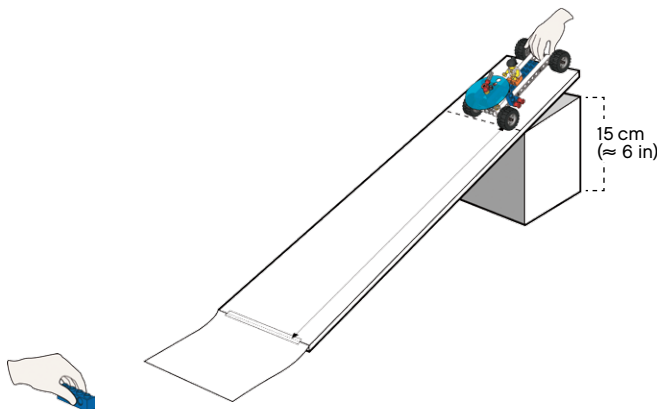
(All of book 3A and book 3B to page 6, step 12.)

- Check all axles and bushings to make sure the wheels turn smoothly
- Let your freewheeler run down the ramp



## Which will roll further ... heavy or light loads?

- Tip: Place a marker brick next to the track where you predict the cart will stop
- Reset the pointer on the dial after each test run



## Are big wheels better than small?

- Try using big wheels on the back axle

**Test accordingly, following the challenges below:**

	My prediction	My measurements
Extra weight		
Big wheels		
Big wheels and extra weight		
?		

## Did you know?

The empty cart weighs about 58 g (≈ 2 oz). And the weight brick weighs 53 g (≈ 1.9 oz)... almost the same! The big wheels weigh 16 g (≈ 0.5 oz) each and the small ones only 6 g (≈ 0.2 oz) each.

**Larger scales ... and steeper hills**

Build book 3B to page 12, step 12  
 Change the ramp position to be 30 cm (≈ 12in) high.  
 Test your different types of freewheelers.

**What I found out when making the slope steeper:**

---



---



---



---



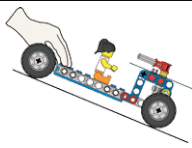
---



---



---

	<b>My prediction</b>	<b>My measurements</b>
		

**My Amazing Downhill Racer!**

Draw your favourite freewheeler design.  
 Explain how the three best parts work.