



# Factors that affect stopping distances



- Can you think of factors that could change the stopping distances?

*Ask your teacher for a help sheet if you are not sure.*



**Figure 1**

- Get a piece of blue tack, a CD, a bottle top and a balloon from your teacher. **Figure 1**
- Push the bottle cap down so the valve is closed. **Figure 2**
- Roll the piece of blue tack into a long sausage. **Figure 3**
- Put blue tack on the base of the bottle top making sure there are no gaps. **Figure 4**



Figure 2

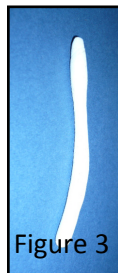


Figure 3

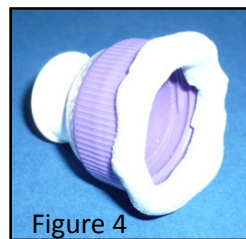


Figure 4

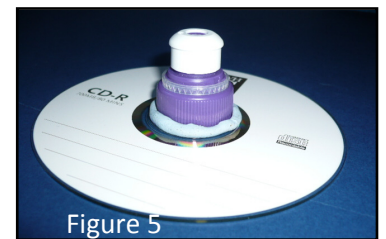


Figure 5

- Stick the bottle cap onto the CD so that it covers the hole in the CD. **Figure 5**
- Blow up the balloon using the balloon pump.
- Fix the balloon onto the top of the bottle cap. **Figure 6**

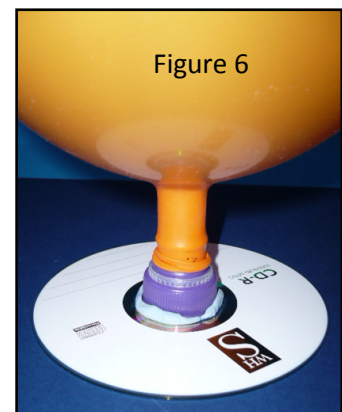
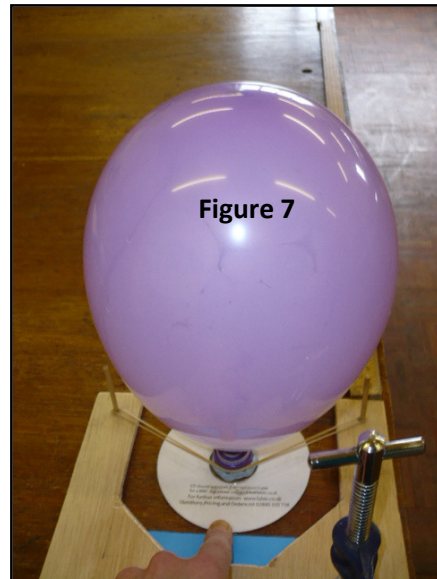


Figure 6

- Place the CD with the balloon attached in the launcher. **Figure 7**



- Open the valve on the bottle cap by holding onto the bottom section of the bottle cap, the purple part, see **figure 5**, and pulling the white top up and release the CD.
- How far did the CD move across the surface of the table? Measure the distance.
- Repeat the experiment only this time do not open the valve. How far did the CD move across the surface of the table? Measure the distance.
- What would be the best way of displaying your results?
- What force does the cushion of air reduce? Write a few sentences to explain why the stopping distance for a car on an icy road is more than double what it is on a dry road.
- If it was a rainy day and the roads were wet do you think the stopping distance would change? You need to explain why you gave that answer.