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| Topic | Air resistance | Level | Key Stage 3 and GCSE |
| Outcomes | <ol style="list-style-type: none">1. To be able to describe and explain air resistance2. To evaluate a model for air resistance3. To describe and explain how we can reduce air resistance | | |

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Top speed: 90 mph

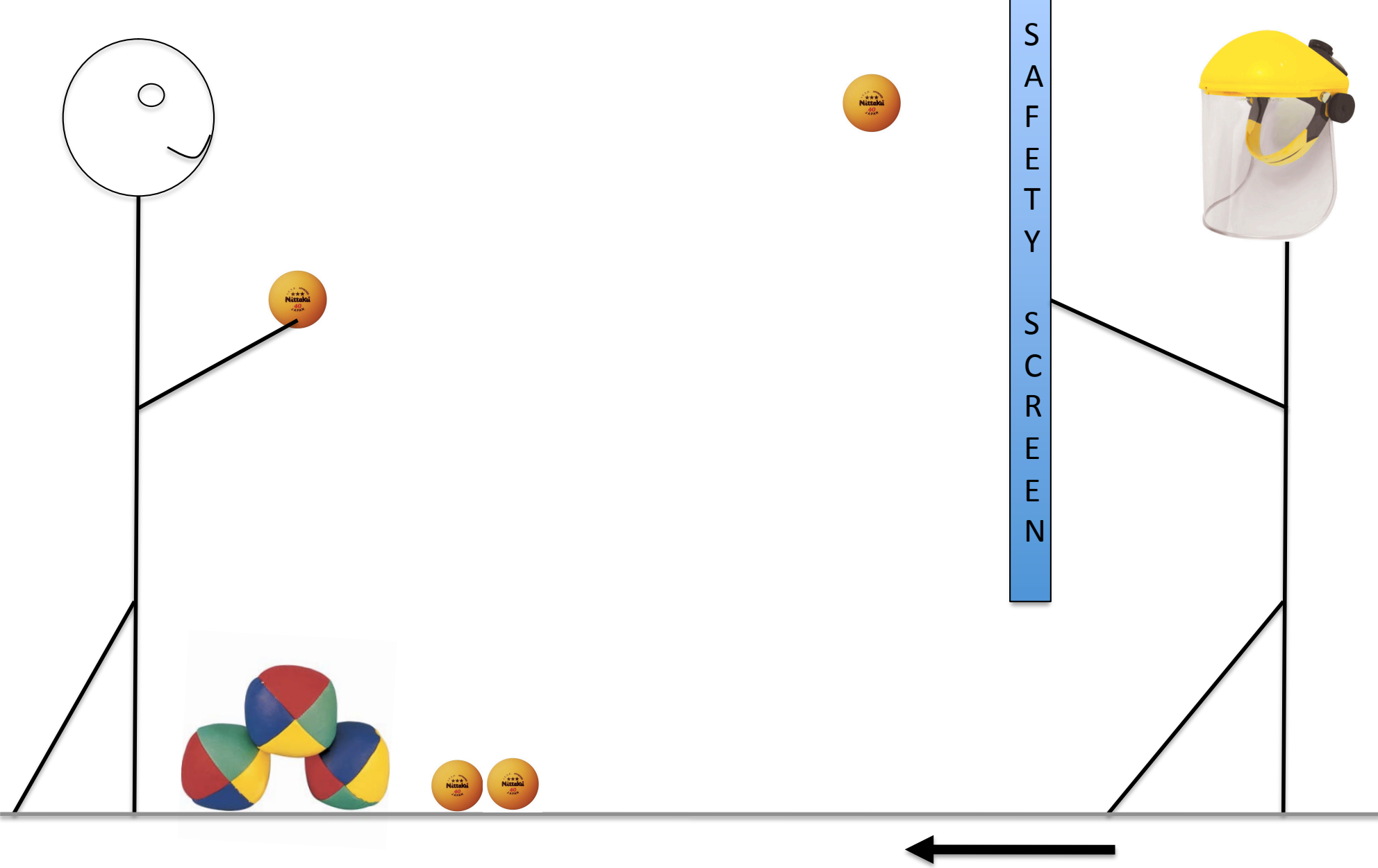


What changes
could we make to
the bus to make it
travel as fast as
the car?

Top speed: 233 mph



Modelling air resistance: feeling the force



Our model

1. In our model what did the ping pong ball and safety screen represent?
2. Describe what happened when the ping pong balls were thrown against the screen. What did you observe? What did you hear?
3. Did the juggling balls behave in the same way as the ping pong balls? Which ball do you think is the **best** representation of an air particle? Explain your answer.
4. If the safety screen moves faster towards the balls what happens to (i) the force of the impact and (ii) frequency of impact
5. How could we adapt this model to show why a formula one car experiences less air resistance than a bus?
6. In this model the 'car' is not moving very fast. What other problems (limitations) are there with this model.
7. Did you find this model useful to help understand air resistance. Why? Why not?
8. In your own words can you now explain why a one formula car travelling at 50 mph experiences less air resistance than a bus travelling at the same speed?
9. **Challenge! Could a formula one car ever experience more air resistance than a bus? Explain.**