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| Stories |
| Still the only one |
| Fast fall |
| Free fall |
| Whirling a dance partner |
| Are they weightless? |
| The bigger the pull |

1. What is the problem with large wings?
2. What force makes a skydiver go faster and faster?
3. What force slows him down when the parachute opens?
4. Astronauts look like they’re ----------.
5. Weight is the force of the Earth’s ------- on a body.
6. Far out in ----- you can’t feel the force of the Earth’s gravity.
7. The astronauts are not really weightless; they’re in ----\_----.
8. What is gravity?
9. The Sun’s gravity does what to everything on Earth?
10. How many dance partners does the Sun have?
11. Astronauts on the Space Station are in free fall just like what?
12. What’s the big difference between skydivers and astronauts?
13. Why don’t the astronauts hit the Earth?
14. What force makes you fall over when you trip?
15. Everything pulls on everything else but the larger the object the ------ the pull.
16. What force brings you back to Earth if you jump in the air?

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| Stories |
| Some size of parachute |
| It is not easy |
| Well oiled |
| Slide speed |
| Lifting a rhino |
| What is a pulley? |

1. What force slows the re-entry module down so they don’t hit the ground too hard?
2. What happens to the force of air resistance if you increase the size of a parachute?
3. All the interesting activity on the Sun happens because of what?
4. What does Lyndsay Fletcher do?
5. What does she say about magnetism?
6. What is the point of oil?
7. Which force does that reduce?
8. What happens to a fast-running machine without oil?
9. Which force does the water reduce, in a water slide?
10. What would happen if the water wasn’t there?
11. What would you use to lift a rhinoceros?
12. What is a pulley?
13. What does the simplest pulley do?
14. What can you do to pulleys to help you lift something heavy?

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| Stories |
| Forces in balance |
| What’s a pulley (part 2) |
| What’s a pulley (part 3) |
| Block and tackle |

1. What usually happens when a force acts?
2. If you push an eraser why doesn’t it move at first?
3. A force in one direction won’t make an object move if there’s the same force in the -------- direction.
4. What does a push have to be greater than to make the eraser move?
5. What’s the word we use when the force in one direction on an object is the same size as the force in the opposite direction?
6. Which forces are in balance in a tug-of-war before one side wins?
7. Why doesn’t the force of gravity pull you through the floor?
8. What’s the heaviest weight you can lift with the simplest pulley?
9. What’s the big advantage you get with two pulleys connected together?
10. What is a Newton?
11. With eight pulleys connected what’s the force of your pull to lift a weight of 800 Newtons?
12. If you’re buying a pulley system the wheels are usually what?
13. What is it called when the wheels are mounted together?
14. What is the whole piece of equipment – the wheels and rope together - called?

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| Stories |
| Simple machines |
| The lever |
| The lever (part 2) |
| The machine trade-off |

1. What is a machine?
2. How does a machine do that?
3. Give a simple example of a lever.
4. What are the three most important simple machines?
5. If the weights of the two girls are the same and they sit the same distance from the middle, what happens?
6. If one person is heavier than the other what does he have to do to get a balance?
7. How can the smaller girl lift the big guy in the air?
8. A see-saw is an example of a lever; give two other examples.
9. We get more force out of a machine than we put, but what do we get less of?
10. What is the trade-off in all machines?
11. What pesky force means you always get less work out of a machine than you put into it?
12. So why do we use machines at all?
13. In low gear your feet travel much ------- but they have to use less force.

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| Stories |
| Gears in a car |
| First car journey |

1. In what way are the gears in a car like the gears on a bike?
2. In a car what is it that’s moving farther in low gear?
3. What is the name of the dial on the dashboard that will show you that?
4. Why did early motor cars struggle on the hills?
5. So what did you often have to do on hills?
6. Who made the worlds’ first long-distance car journey?
7. What did she invent?
8. Why did Bertha Benz make her famous car journey?
9. Where did she buy fuel for the car?
10. What did she use to make repairs when the car broke down?
11. What was her suggestion to make it easier for the car to drive up hills?
12. What did Karl do then?