

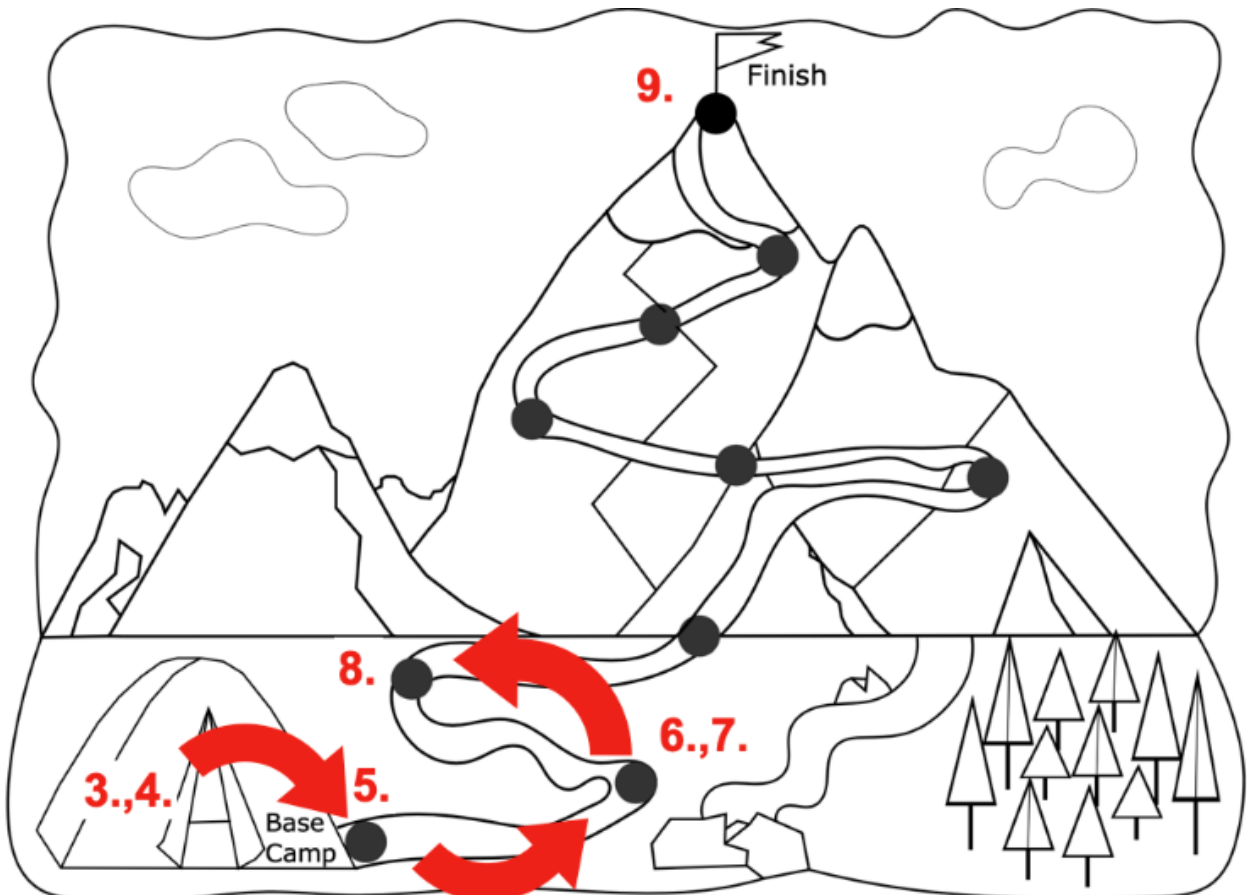
Care to Repair	
The Activity	Kit you will need
This quiz boardgame will test your knowledge about bike repair and maintenance. You will build your own bike, personalize it, and learn how to keep your bike in great condition – for you or someone else!	Scissors, colouring pencils, string Glue or sticky tape Printer and paper

Preparation Instructions

1. Print out 'Board Game and Question Cards'. There is both a colour and black and white version of the board game. If you print the black and white version, you can colour in the board.
2. The Question Cards are double-sided, with the answers on the back, so make sure you don't cheat by looking at the answers! If you can't print them out double-sided, put the sheets with answer cards to one side.
3. Print 'Bike Parts'. You need one 'Bike Parts' for every person playing. Also, in 'Bike Parts' are your counter for moving up the mountain, and a helmet.
4. Cut out all the bike parts or get a parent to help you.
5. Cut out the question cards.
6. The last thing you need is some string. You need three pieces of string, one 20cm, one 10cm and one 5cm. In order these will be the chain, the back brake cable and the front brake cable.

Board Game Instructions

1. In this game you will be racing up Mt. Repair to fix your bike and reach the top.
2. Before you get started you need to read the fact file later in the worksheet! This will give you all the information you need to get up the mountain.
3. You start the game with only your counter. Colour it in if you want and place it down at Base Camp. The numbered diagram below shows where you should start



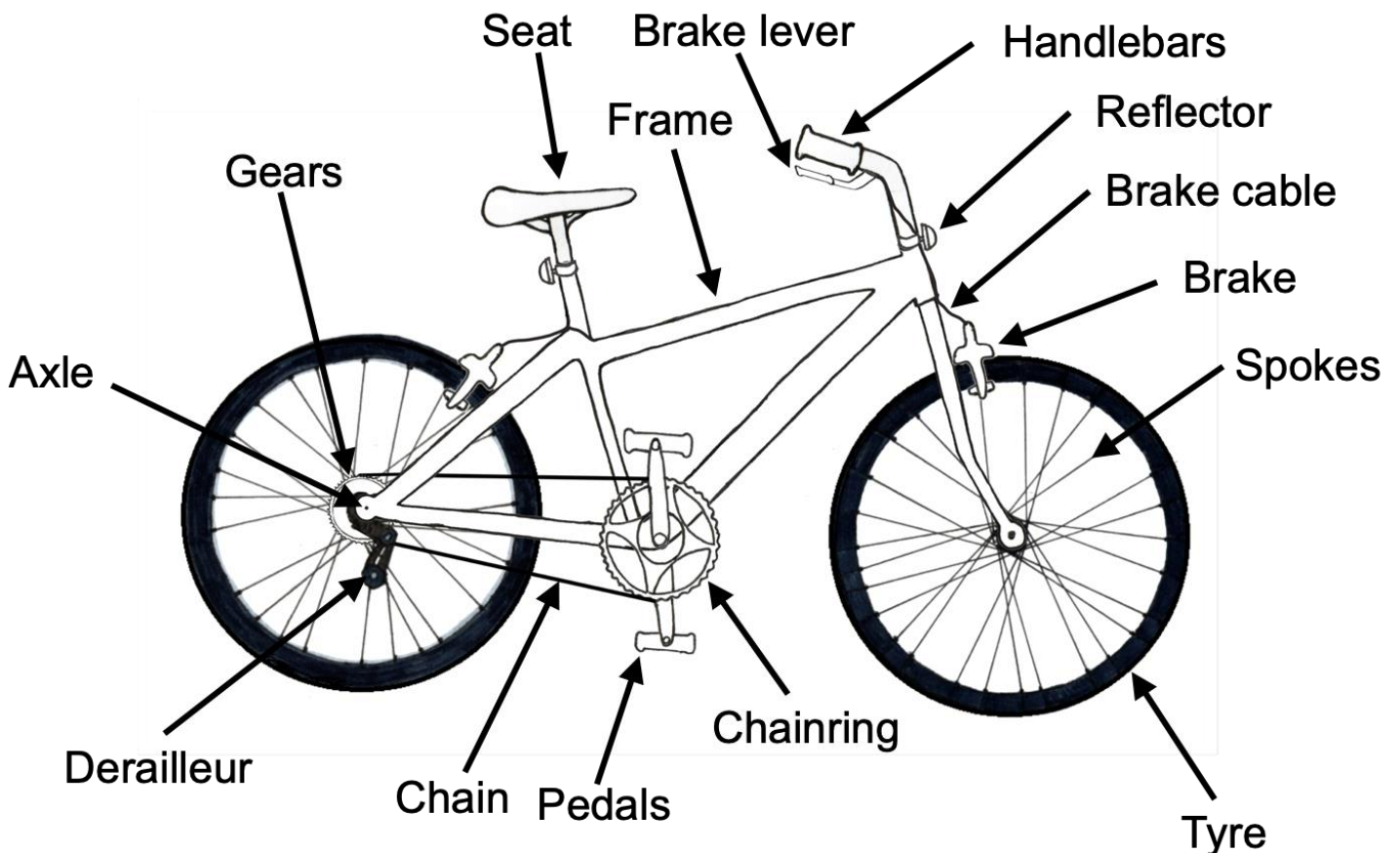
4. To leave Base Camp you need a helmet! To get a helmet, you need to answer a question from the cards correctly. The answer is on the back of the card. Decorate your helmet and stick it to your counter's head.
5. Once you're ready to go, place your counter on the first black dot. Here, you must answer another question right to get your bike frame. If you get it right, take your frame and move your counter onto the next dot.
6. At each dot you answer a question. If you get it right, pick out a bike part and move to the next dot.
7. Here are the bike parts you can choose from, some of them come together:

Front & back wheel Chain Gear Pedals Seat Handlebars Brakes & brake cables Reflectors

8. Each part you get you can add to your bike. The diagram below shows you what this should look like. The red lines in the second image is to show more clearly where the string for the chain and brake cables should go. Once you reach the top, decorate your bike! Make sure you cover up the scratches on the frame. Will you keep your bike or donate it to someone if you've outgrown it?



Fact File: Bike Parts





Fact File: Rust

What is it?

Rust is the brown material you sometimes see on metal things. It happens when a metal containing iron is exposed to water over an extended period and is the product of a chemical reaction between iron, water, and oxygen in the air. Rust is an irreversible reaction and can't turn back into the shiny iron it once was.

Out and about!

Where have you seen rusted things before? Hint: The salt in seawater makes metal rust faster.

On a bike:

All metal part on your bike can rust and look bad. Rust can even be dangerous in places!

On a bike-frame, the paint helps to protect the iron in the frame. If the paint gets scratched, water can get in and cause rust. Once the rust starts it can push off more paint and expose more metal, making the rusting worse. If the rust has eaten through the bike frame and there are holes it's no longer safe to ride.

Rust can occur in brake cables, weakening them and maybe even causing them to snap. To help avoid this happening the cables are normally encased in plastic. Just by the brakes the cable is probably exposed, which means it is in greatest danger there.



The chain can also get rusty. Oiling your chain will act as a barrier between the water and oxygen that causes rusting, keeping the chain safe.

Care to Repair:

- Prevent rusting by storing your bike somewhere dry when you're not riding it
- Keep an eye out for any scratches in the paint, you can reseal these with nail varnish or metal paint
- Oil your chain regularly
- Although rust is irreversible, surface rust can be cleaned away. You can use weak acids like cola or vinegar, and tin foil. Dip the shiny part of the foil in the liquid and use it to buff away the rust!
- If you can't get rust off your exposed brake cables it is best to replace them.
- Check out our list of guides on how to fix and care for your bike!



Fact File: Friction

What is it?

Friction is a force between two objects that happens when they rub against each other. Friction acts in the opposite direction to motion, so it slows moving objects down. The smoother the objects are, the less friction there will be between them. The harder objects are pressed together, the more friction there will be between them. Friction causes heat and sound when objects are moved against each other.

Test it out!

If you put your hands together so they are lightly touching and rub them against each other. This should be easy. Now try pressing your hands together hard and it will be more difficult. You should also be able to feel your hands getting hot when rub them together.

On a bike:

Friction can be helpful on a bike but can also cause problems!

Air resistance is a type of friction that is also important on your bike. When professional cyclists are racing, they have smooth helmets and tight fitting clothes to reduce air resistance, which would slow them down. They also crouch down close to their bike to make themselves smaller so there is less air resistance.



Friction is what makes bike brakes work. The harder you pull your brakes, the faster your bike slows down. Brake pads have patterns on them that increase friction between the brake pad and the wheel rims.

If there's too much friction between the axles and the chain the bike will be noisy and hard to pedal.



Friction around your chainring is bad. Over time friction chainring teeth can become flattened, narrowed, and bent over due to friction between itself and the chain. That can cause the chain to slip off of the ring.

Like brake pads, tyres have patterns to increase their friction with the road. Mountain bikes have thicker tyres and bigger patterns, this is because they are designed to go on more slippery paths.

Care to Repair:

- Regularly oil your chain to reduce friction around the gears, chainring and axles.
- Wearing down of brake pads and wheel rims is unavoidable, you can help prevent severe scratches to your rims by cleaning out any grit and dirt from your brake pads after a ride.
- It is important to regularly check your brake pads to make sure they haven't worn down to a dangerous level.
- When the patterns on your brake pads and tyres are no longer visible, or the chainring is worn down it is time to replace them.
- Check out our list of guides on how to fix and care for your bike!

Fact File: Air Pressure

What is it?

Air pressure is the weight of the particles in air pushing down on us, or if the air is trapped inside something, pushing out. The hotter the air is, the more energy the particles will have. If they have more energy, they will try to take up more space, and if they cannot do that the pressure will get higher.

Test it out!

Blow up a balloon and let go. All the air inside the balloon will rush out and the balloon will deflate. This is like what happens when your bike gets a puncture. The air pressure inside the balloon and the tyre is higher than the air around us but the air wants to be all the same pressure, so it will rush out if the balloon and the tyre aren't sealed.

On a bike:

Air pressure is important in a bike's wheels

If the pressure in your bike tyres is too high your tyre might burst when you are out for a ride and the tyres heat up



If your tyre pressure is too low you are more likely to get a puncture. You might also damage the metal ring of your wheel.

Because the particles in air are very very small they will eventually escape through gaps in your tyres, even if you don't have any punctures! The gaps in your tyres are so small you can only see them with a microscope.

Care to Repair:

- Regularly pump your tyres to make up for the air that slowly escapes from them. You need to find the sweet spot between too low and too high.
- If your tyre has a puncture, patch up the hole or replace your innertube.
- Check out our list of guides on how to fix and care for your bike!



Looking after your bike for you, others and the environment.

Looking after your bike keeps you safe but, just as important, it will mean it will last longer. Buying a new one uses raw materials, energy and are expensive. But what happens once you've outgrown your bike? Why not give it away to someone you know or donate it! Buying second hand is a great way to help the environment.

Links to videos and websites that will help you clean, mend, and look after your bike:

Rust:

[Remove Rust from Bike:](#)

[How to Remove Rust:](#)

Brakes:

[Replacing Brake Pads:](#)

[Brake Tune-up](#)

[Brake Care](#)

[How to Replace Rim Brake Pads](#)

Tyres:

[Checking Tyre Pressure without a Pressure Gauge](#)

[Pumping Up Bike Tyres](#)

[Guide to Bike Tyre Pressure](#)

[How to Pump Bike Tyres](#)

General:

[Get your kids bike ready to sell](#)

[Bike Tech Tips](#)

[Five-minute Bike Safety Check](#)

Buy second hand or donating your bike in Glasgow

[Bike for good:](#)

- Sells second hand bikes
- Accepts donations of old bikes
- Services and repairs bikes
- Classes on repairing your bike
- Offers access to a bike for adults with low or no income
- Bike Hire

[Free Wheel North:](#)

- Sells second hand bikes
- Services and repairs bikes
- Cycling lessons for all ages, caters for those with disabilities

[Common Wheel:](#)

- Sells second hand bikes
- Services and repairs bikes
- Offers access to a bike for adults with low or no income
- Accepts donations of old bikes

[Bikes for refugees:](#)

- Offers free bikes to refugees
- Accepts donations of old bikes
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[On bikes:](#)

- Services and repairs bikes
- Bike hire for kids

[SoulRiders:](#)

- Sells second hand bikes
- Services and repairs bikes
- Has kids programmes
- Accepts donations of old bikes

[Lambhill Stables Bike Hub:](#)

- Sells secondhand bikes
- Services and repairs bikes
- Bike Hire

[Alexandra Park Bike Hub:](#)

- Services and repairs bikes
- Classes on repairing your bike
- Free bike hire for kids
- Learn to ride events

[Drumchapel Cycle Hub:](#)

- Bike hire for all ages
- Cycling lessons

[South West Community Cycles:](#)

- Bike hire
- Services and repairs bikes
- Cycling lessons for all ages
- Accepts donations of old bike