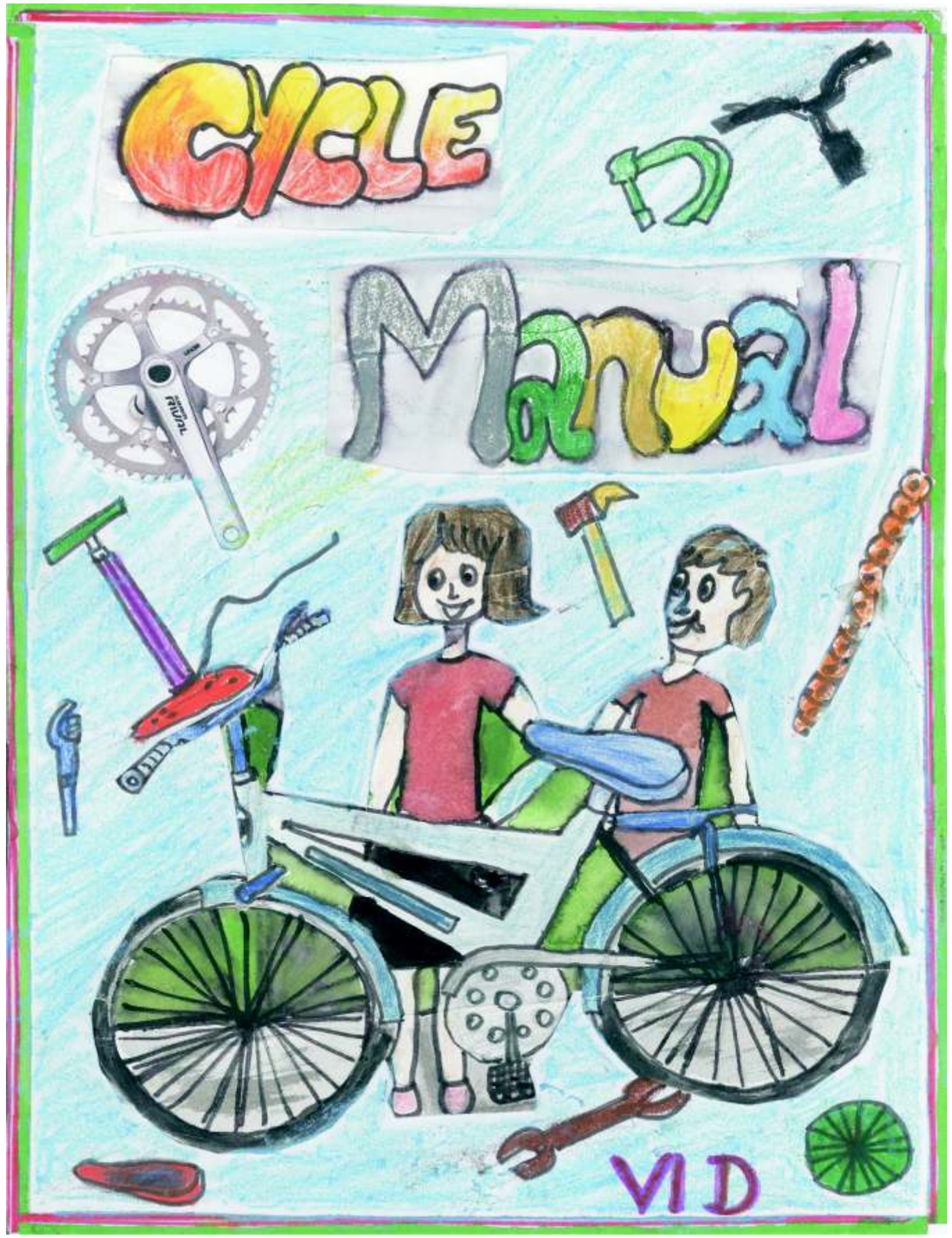

THE BICYCLE MANUAL
Now that you have read the manual
Hope you know how to maintain your cycle
Take a step to make the world a better place to live in....


CYCLE
Manual
VI D

So they Spoke...

If you are worried about falling off
a bike you'd never get on...
American Cyclist
Lance Armstrong.

Nothing compares to the simple pleasure of riding a bike.
John F. Kennedy

The bicycle is a curious vehicle.
Its passenger is its engine.
John Howard

Dedication

This bicycle Manual is dedicated to
Our Parents
and
Jayshree Ma'am

About the Authors

The authors of this book are the students of Grade 6 D Batch of 2010-11 who worked on Project Bicycle. This manual has been created for the students of Middle programme of our school as it was felt that children of this age group are very fascinated with their cycles. During the course of Project Bicycle, the students of Grade 6D worked on assembling, dismantling and repairing old bikes to observe and discover the function of different parts of a bicycle. This manual is one of the end products of the project and has been created after the hands-on experience in the bicycle lab.

Our Contributions

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Seat and Seat Post:	Adyaa,
Kick stand:	Shubhi
Shock Absorbers:	Harshita and Yatharth
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The team behind

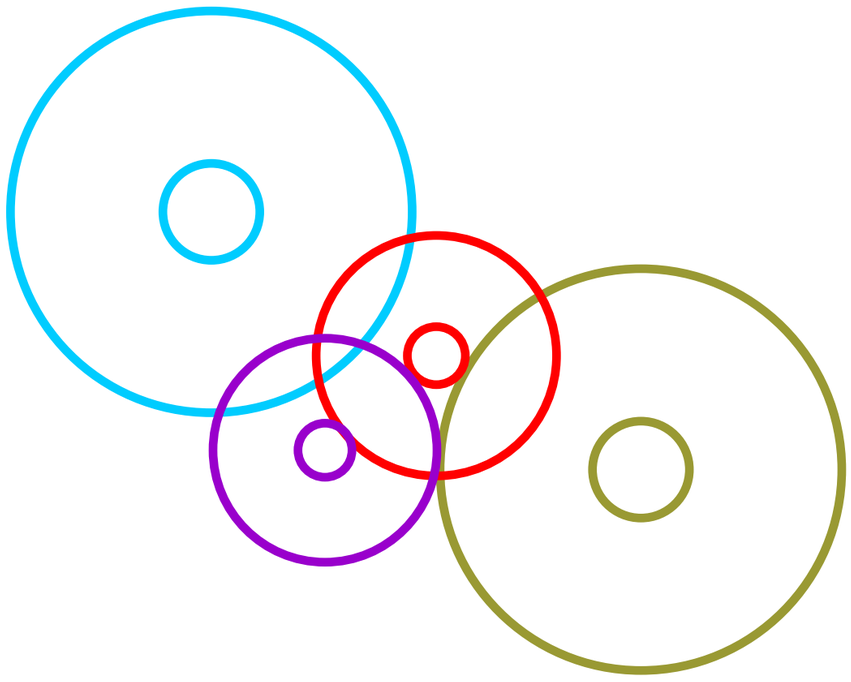
The Champs of Class VI-D, 2010-11

Acknowledgement

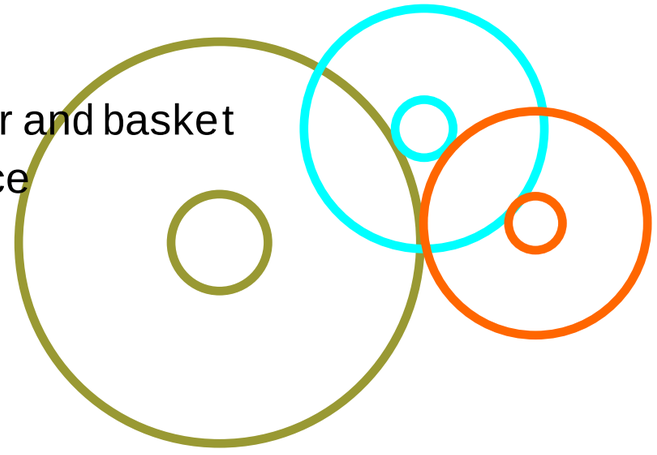
We want to thank Jayshree ma'am for helping us to create this bicycle manual. She provided constant support and encouragement and motivated us to come out with our best.

We also want to thank some of our schoolmates for donating their old bicycles. We were provided with new cycle parts by the school for repairing old cycles and we immensely thank the school for this.

We wholeheartedly thank Sahil Sir and his team for patiently helping us in dismantling, cleaning, repairing and assembling the old cycles and making them look as good as new. We finally want to thank the 6th grade teachers who chose this topic for our project.



Contents

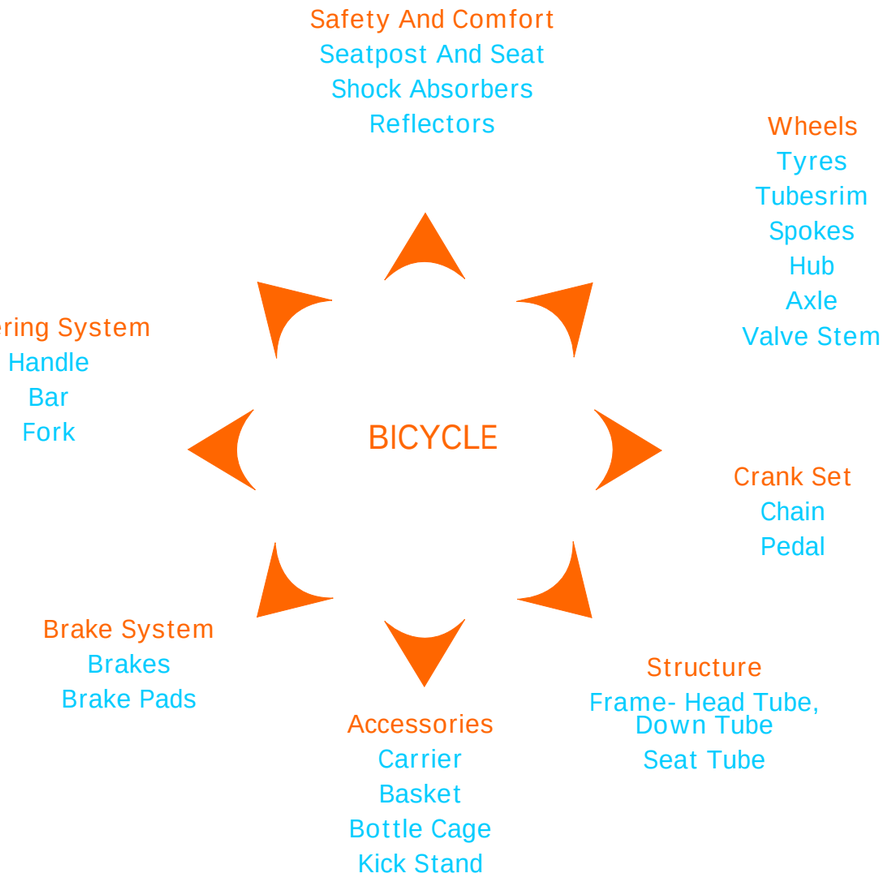


Introduction

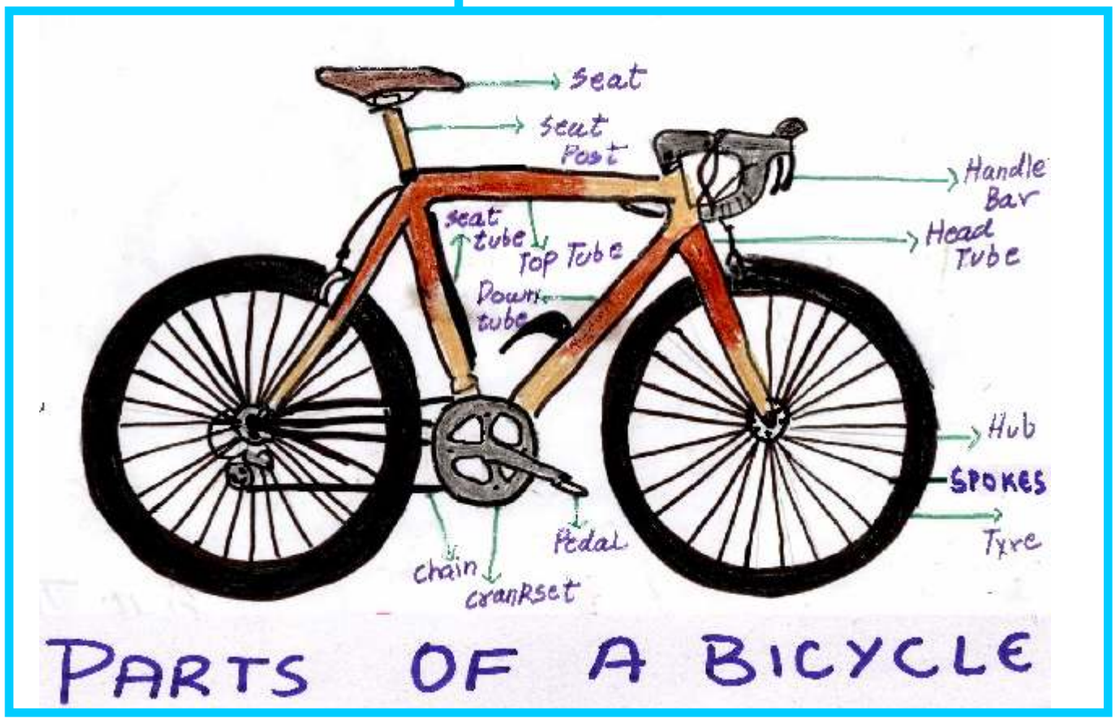
Our journey of the project bicycle was full of enthusiasm and fun. Our project started when we went to different areas of Gurgaon to see the traffic patterns on the roads. We also drew sketches of bicycles and their parts with the help of our Art teachers. After the sketches, we were split into four teams and each team got an old bicycle. Our task was to dismantle the bicycle and clean and change the rusted and dirty parts. It took us

7 days to dismantle the bicycles and clean their parts. After the cleaning we had to reassemble the parts and put together the cycle. It was a joy when we took a small test-drive and went back to the classroom. In the classroom we had a small discussion in which we shared our experience of making the bicycle and as a class we decided to make a manual on bicycles. In the next few days we made a rough draft by working on different parts of the bicycle. After rigorous work we have come out with this final draft of our manual which we have designed for the students of our Middle Programme. This was our project and it was full of fun.

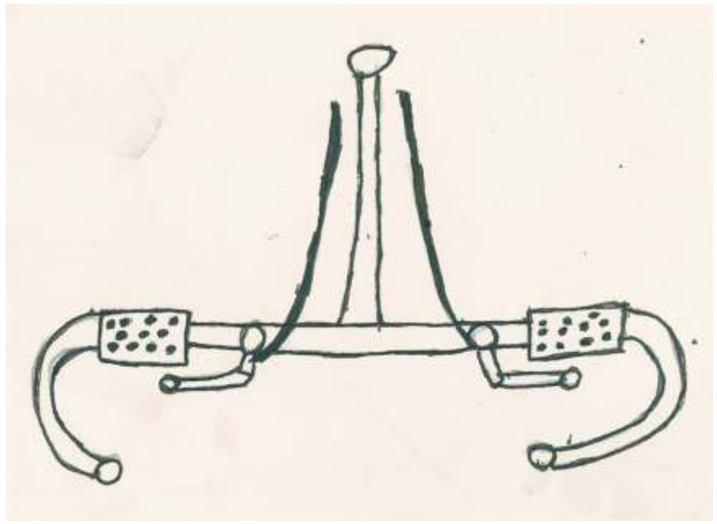
Classification of Bicycle parts



Parts of a Bicycle



Handle Bar



Description

The **Handle Bar** is a very important part of the bicycle. it helps the cycle turn left or right. the bell, brakes and the gears are mounted on the handle bar.

Function

The function of the handle bar is that it helps to control the direction of the cycle. when the rider turns the handle bar left or right, it makes the front wheel turn accordingly and the cycle goes where it has to go.

If the handle bar is dysfunctional, the bicycle will not be under the control of the rider. and will not turn.

Fork

The **Fork** is a very important part of any bicycle. It begins from the base of the stem of the handle and branches out like two hands and holds the hub of the front wheel on both sides.

The fork connects the front wheel to the handle bar. It allows the front wheel to turn left or right according to the will of the rider.

If the fork does not function properly, it will be very difficult for the rider to steer and also balance the cycle.

Inspiring Thoughts

Frame- Head Tube, Down tube and Seat Tube

The Frame of the bicycle is just like our skeleton .It is made of metal and other parts such as seat, pedals, handle bars are attached to it. It is in the shape of a triangle and consists of the head tube, down tube and the Seat tube. We can maintain this part by cleaning it very often and not exposing it to extreme hot or cold weather.

The function of the frame is to give support to the bicycle and hold other important parts. It also gives place to the rider to sit.

If the frame goes out of shape, many other parts attached to it would come out and may not work. the rider. and will not turn.

Seat and Seat post

The Cycle Seat is the place where the rider sits. The seat post is a cylindrical structure just below the seat .The seat is attached to the seat post with the help of nuts.

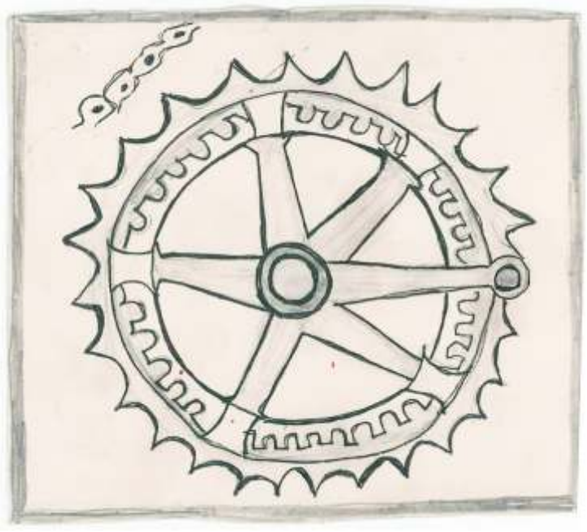
The seat provides comfort to the rider as he can ride sitting on it.

Sometimes, the seat tilts to the side or moves forward and backward and the rider might feel uncomfortable while riding. To rectify this, he has to tighten the nuts below the seat.

Crank Set

The Crank set is also known as Chain set in the UK. It consists of the chain rings and two arms which are attached to the pedals. It is connected to the rear wheel through the chain. It is made of aluminum, alloy, titanium, carbon fiber and cheap steel.

The function of the crankset is to convert the clockwise motion of the pedals into anti-clockwise motion of the chain which makes the rear wheel move.It the crank set becomes dysfunctional, the chain will not move and the cycle will not move forward.

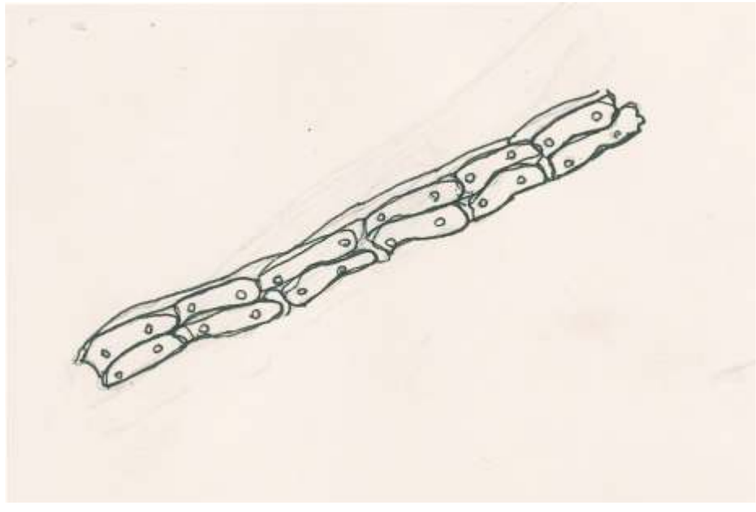


Bicycle Chain

The Chain connects the crank set to the rear wheel and makes it rotate while pedalling. It is present on the right side of most cycles.

The function of the chain is to transfer power from the pedals to the rear wheel and thus making the bicycle move forward.

If the chain becomes dysfunctional, the power from pedals will not get transferred to the wheel.



Inspiring Thoughts

Pedal

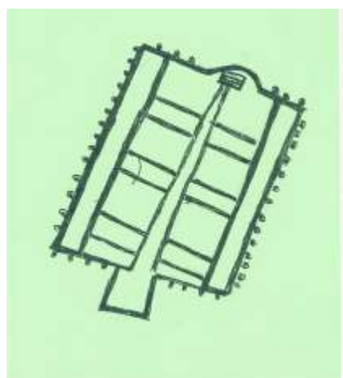
Description

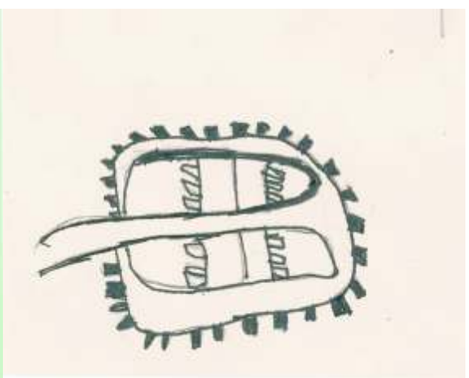
The word pedal comes from the Latin word pes or pedis and relates to foot. Pedals are made of plastic, metal and now even magnet. Pedal is connected to the chain. It goes in a circular and rotatory motion.

Function

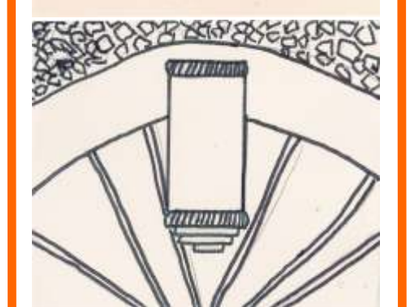
Pedal is a lever activated by ones foot. The pedal works when it is rotated by foot, as it is attached to the chain, the chain goes round having the wheel and pedal moving with it.

If the part became dysfunctional, we would be pushing the cycle with our foot. So what's the point of a cycle then? We can easily walk then, can't we?
(The first cycle called ‘Draisene’ or ‘Hobby Horse' did not have pedals, people used their foot to ride the cycle.)





Tyre tube and valve stem

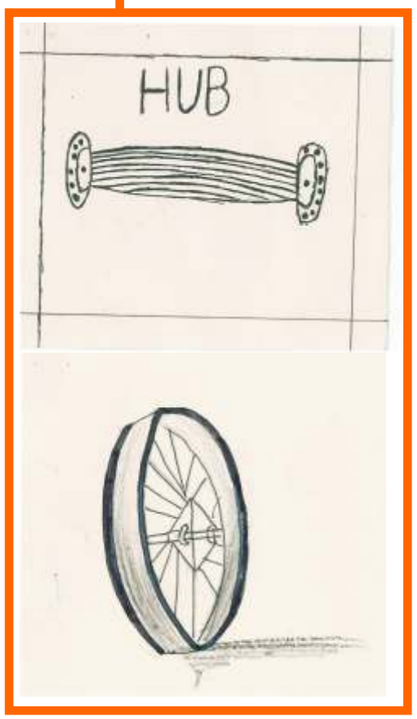


Tyre tubes and Valve Stem are ve?y important parts in the bicycle.
A tyre is a ring-shaped covering that fits around a wheel rim to protect it and enable better vehicle performance by providing a flexible cushion that absorbs shock while keeping the wheel in close contact with the ground.

The valve stem is a tube made of steel or rubber with a metal valve used to inflate the tire with air. Valve stems usually protrude through the wheel for easy access for inflation. Tires are inflated through the valve stem.

If the parts become dysfunctional then we will not be able to ride the bicycle because the cycle becomes unstable and wobbly and we will not be able to ride it smoothly.

Rim, Hub and Spokes



Description

Hub is a cylindrical box between the wheels. It is the central part of a bicycle wheel.

Function

It is made of axle and bearings. The axle goes through the hub and is attached to the wheels and makes them rotate. The bearings allow the wheel parts to rotate freely by reducing friction.

Description

Rim is the metal circle holding the tyre.

Hub- Hub is a cylindrical box between the wheels. It is the central part of a bicycle wheel. It has the axle attached and the tubes fit in the hub which attach the wheel to the bicycle

Spokes- There are about 30 spokes and they come out of both ends of the hub and add strength to the rim.

Function

Rim- Connect tires with the Hub

Hub- To attach axel for putting bearing

Spokes- They add strength to the rim and transfer leg power from the hub to the whole wheel. They also support the weight of the rider.

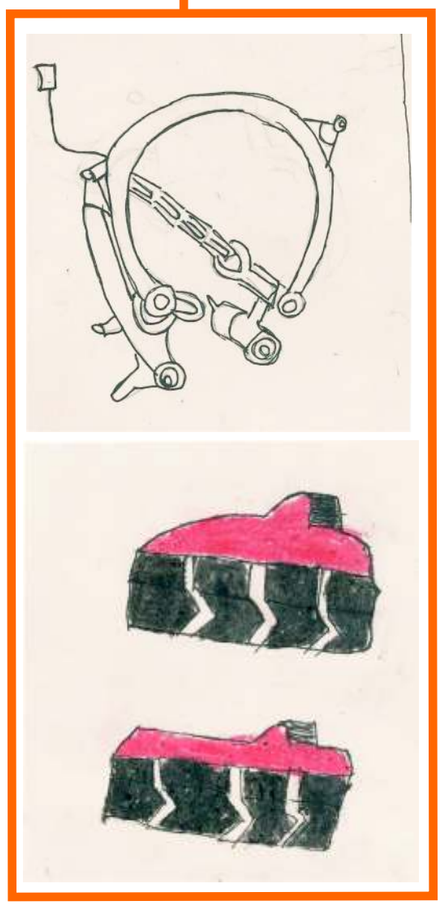
Without...

Rim- There will be no base for the tyre and the wheel will fall down.

Hub- Nothing will hold the axel and spokes

Spokes- The hub will need more energy and its power will not be transferred to the whole wheel. The rim might also go out of shape.

Brake and Brake Pads



The **brakes** consist of brake levers, brake cable and brake pads. They can be collectively called the Brake System. The brake levers are within the reach of the hands of the rider on either side of the handle bar. The right brake is for the front wheel and the left one is for the rear wheel. The brake cable is connected to the brake pads which are like two hands on either side of the rim of the wheel.

The **brakes help** in bringing the cycle to a halt by applying a force on the moving wheels. When the rider pushes the brake lever, the brake cable carries the force to the **brake pads** which come closer to each other and together touch the rim of the wheels to make it move slower or bring it to a stop.

If the **brake system does not function,** the rider will not be able to stop the cycle when he wants to. This might result in the cycle crashing against something and the rider falling off and getting hurt. To halt the cycle, the rider will have to use his legs just like how people in the ancient days did.

Inspiring Thoughts

Shock Absorbers

Description

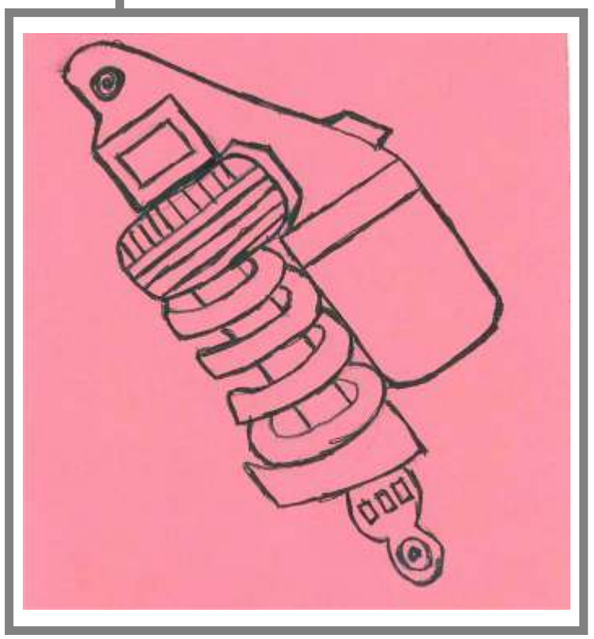
Shock absorbers are cylindrical devices that consist of a rubber spring coil and a piston. There are two metal plates, one above and the other below the coil which hold it.

Function

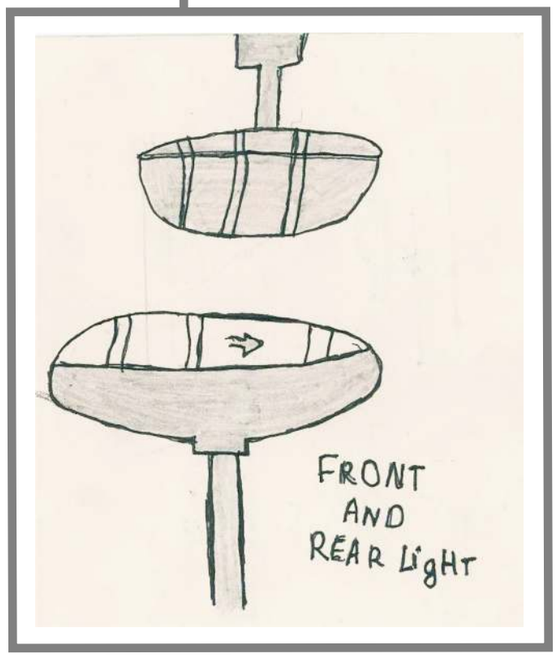
It is that part of a bicycle which absorbs bumps and jolts. When we ride on a bumpy road, it absorbs bumps so that the rider can have a smooth ride.

If this part becomes dysfunctional then, when we sit on our bicycle and ride it on a bumpy road, we will feel as if we are riding our bicycle on a rocky mountain. This will affect our bones!

Did you know that ancient bicycles were called Boneshakers?



Reflectors



Reflectors are plastic tiles which have hundreds of pyramidal shapes inside them. When light falls on the plastic tile, these shapes act like mirrors and reflect the light back in different directions.

The front and Rear Reflectors help the bicycle and the hence the rider to be seen in dark. When the light from the headlight of a car falls on the reflector, due to the reflection, it makes the bicycle visible. So, it is very important to keep him safe at night.

KickStand

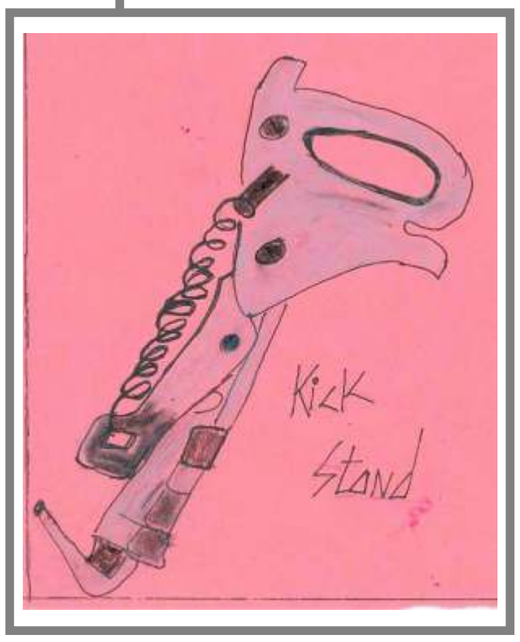
Description

A Kickstand is usually of metal that flips down from the frame and
makes contact with the ground .It is generally located in the middle or towards the rear of the cycle

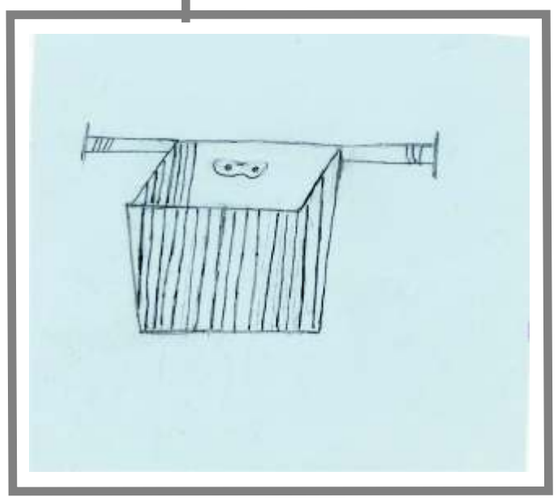
What role does it play in a cycle?

A kickstand is a device on a bicycle that allows the cycle to stand
upright without leaning against any object or with the aid of a person.

If this part becomes **dysfunctional,** the cycle cannot stand upright and will fall.



Bottle Cage, Carrier, Basket



Description

It is an extra part of the bicycle which is used to carry a water bottle.

Function

Bottle cage carries our water bottle And it protects the water bottle from falling down.
If it becomes dysfunctional or if it s absent, it will become difficult to carry a water bottle.

Carrier

Description

It looks like a backseat

Function

It is used to carry things. It also helps another person to have a ride on the bicycle.

If it becomes **dysfunctional** or if it is absent from a bicycle, it will not be possible to carry things.

Basket

Description

It is an additional part which is a container and is fixed above the fork and just below the handle bar.

Function

it is used to carry things.
If dysfunctional or if it is absent from a bicycle, it will not be possible to carry things.

Inspiring Thoughts

Maintenance

For every cyclist, **Bicycle maintenance** is an important skill to acquire. This helps in keeping the bike in working order and also saves money.

These are typical places where the parts get filled up with dirt, rust and grime.

Tyre

Before riding the bicycle check the air pressure of the tyre. Press the tyre and see if the tyre is squeezing. If it is squeezing, it means that it does not have sufficient air. So fill air in the tyre and check again to see if it is sufficient.

Brake and Brake pads

Check brake pads if they are worn out or not. Oil the brakes regularly so that they work smoothly. Even squeeze the brake handlebar to see if the brake pads are jamming the rim. If they are not jamming the rim, the brakes are not working. So replace the brake pads.

Crank set and Chain

Oil the chain and crank set regularly and remove the rust, grime and dirt.

Pedal

Always remember to oil the joints so that they do not get stuck.

Rim and spokes

Wash the rim and spokes and dry them quickly and check if the spokes are broken and if they are broken replace them with new ones.

For Your Safety

It's a beautiful day — the sun is shining, the birds are chirping. What could be more perfect than a bike ride? But wait! Before you pull your bike out of the garage, let's find out how to stay safe on two wheels.

Always wear a Helmet

Your bike helmet should fit you properly. It should not be too small or too big. Never wear a hat under your bike helmet. Once you have the right helmet, you need to wear it the right way so it will protect you. It should be worn level and cover your forehead. Don't tip it back so your forehead is showing. **The straps should always be fastened.** If the straps are flying, it's likely to fall off your head when you need it most. Make sure the straps are adjusted so they're snug enough that you can't pull or twist the helmet around on your head.

Helmet On, Now What?

Riding a bike that is the right size for you also helps keep you safe.

- When you are on your bicycle, stand straddling the top bar of your bike so that both feet are flat on the ground.
- There should be 1 to 3 inches (2.5 to 7.6 centimeters) of space between you and the top bar.

Here's a safety checklist your mother or father can help you do:

- Make sure your seat, handlebars, and wheels fit tightly.
- Check and oil your chain regularly.
- Check your brakes to be sure they work well and aren't sticking.
- Check your tires to make sure they have enough air and the right amount of tire pressure.

For Your Safety

Be Seen, Be Safe!

Wearing bright clothes and putting reflectors on your bike also can help you stay safe. It helps other people on the road see you. And if they see you, that means they're less likely to run into you. Daytime riding is the safest so try to avoid riding your bike at dusk and later.

Where to Ride

You need to check with your mother and father about where you're allowed to ride your bike. You need to know how far you're allowed to go and whether you should ride on the sidewalk or in the street. Kids younger than 10 years should ride on the sidewalk and avoid the street.

No matter where you ride, you need to keep an eye out for cars and trucks. Even if you're just riding on sidewalk, a car may pull out of its driveway into the path of your bike. If you're crossing a busy road, it's best to walk your bike across the street.

Keep an eye on the road ahead so you can be prepared for big hills and road obstacles. Some common ones that can cause falls include:

- wet leaves
- big puddles
- changes in the road or sidewalk surface
- storm grates
- gravel or rocks
- curbs
- little kids in your way!

For Your Safety

Road Rules

- If you're allowed to ride on the street, follow these road rules:
- Always ride with your hands on the handlebars.
- Always stop and check for traffic in both directions when leaving your driveway, an alley, or a curb.
- Cross at intersections. When you pull out between parked cars, drivers can't see you coming.
- Walk your bike across busy intersections using the crosswalk and following traffic signals.
- Ride on the left-hand side of the street, so you travel in the same direction as cars do. Never ride against traffic.
- Use bike lanes or designated bike routes wherever you can.
- Don't ride too close to parked cars. Doors can open suddenly.
- Stop at all stop signs and obey traffic (red) lights just as cars do.
- Ride single-file on the street with friends.

Busy Bikers

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