



Bicycle Expedition

Learning History

Students of Grade 6

Year 2010-11

**Duration of Expedition- 5
months**

Teachers

Ms. Jayshree Iyer

Ms. Preeti R. Saha

Ms. Kanchan Ramakrishnan



INTRODUCTION

The humble bicycle was recently voted as people's favourite invention by the UK National Survey. It was voted for its simplicity of design, universal use, and because it is an ecologically sound means of transport. Most of the children today own a bike and enjoy its cool ride. Bicycles provide a powerful context for children to engage and learn in a fun way. Moreover, it is the vehicle of the future and it is important our children gain understanding of this incredible invention.

The students of grade 6 D, E & F, year 2010 - 11 were engaged in the 'Bicycle Expedition' for about 5 months exploring the bicycle and constructing knowledge around this simple and elegant machine. Through various experiences in the design lab the children got familiar with the parts and functions of a bike. Donning the garb of mechanics, they had great fun dismantling the bike, cleaning it, scrubbing off the rust, oblivious of the aches and stains of the grease. Their moment of glory was when they assembled the bicycle and refurbished their old bicycles.

The children did a fairly in-depth study on the 'History of Bicycles' and gained some understanding of how its design evolved through time with innovations at every step. They got an opportunity to ponder over what it takes to innovate and tried their hand at improving a small part of their bike. They gained insights of its contribution towards the empowerment through case studies of the use of bicycles in Bihar and Tamil Nadu.

The children conducted a mini research on 'Is Gurgaon a Bike Friendly City' and presented their report with their findings and recommendations to the Commissioner of Gurgaon. This was the high point of the expedition.

As a part of the project, a Bicycle Manual was produced by the children in which they detailed the maintenance and safety procedures for bikes. The manual also contained a brief about each part and its functions. It was truly an exhilarating moment for the children when the manual was released.

The project concluded with the 'Bicycle Olympics' where children donated their refurbished bicycles to the children from a village school. They spent the day with the children from the village engaged in various bicycle games.

This expedition provided the children a holistic learning experience through different experiences like conducting a survey, observing traffic, data gathering and representation, meeting experts, practical hands-on experience in the design lab. In addition to this the children learnt the nuances of publishing and were able to connect with the community through their report on Gurgaon.

This learning history details the flow of the expedition. The document also describes the planning that the educators did in order to make the expedition holistic and rich for the children.

This expedition owes its genesis and execution to the invaluable contribution of Mr. Parminder Singh Raparia of Disha India Centre for Experiential Learning who was instrumental in conceptualizing and creating this expedition. We also thank 'Pedal Yatri', an organization working for the advocacy of bicycle as a means of transport, for their valuable inputs and insights.



REFLECTION

HISTORY / FLOW OF THE EXPEDITION

BIG IDEA

1. How does a bicycle work?
2. What does it take to be a bike friendly city? Is Gurgaon a bike friendly city?

The team of grades 6 D, E & F sat along with the project facilitator and arrived at the Big Idea after a lot of deliberations and brainstorming. This took us several project meetings.

FOCUS AREA - CCC

Craftsmanship (Jayshree)

1. Assembling and dismantling of bikes, function of different parts, Maintenance and basic repair.
2. Innovation - Re-design / re-model / re-invent a bike in small groups

Constructing knowledge (Preeti)

1. History, present & future of Bicycle - bicycle as a means of transportation

Case Study (Kanchan)

1. Parameters of a bike friendly city



We wanted to focus on building their background knowledge at the same time work on their craftsmanship skills and be connected with their immediate environment hence we arrived at the three C's keeping the Big idea in mind. This too was a team effort and took several drafts to arrive at the final Focus Areas. A teacher was assigned to lead each strand and do extensive work on the strand taking help from the other members.

SKILLS

1. Designing and asking questions
2. Observation and recording
3. Sketching skills
4. Identifying and solving problems

Skills were taken from the MP pool of skills that have been collectively developed. We chose those skills that we will be catering to through our focus areas.

LEARNING TARGETS

Knowledge and Conceptual targets

Skill targets

Craftsmanship and Character targets

After reworking several times we arrived at the learning targets.

Annexure 1

END PRODUCT

1. Manual and descriptive Book on parts of bicycle

a. Who is the audience?

b. What is the purpose and use?

c. Content areas



- d. Design specifications
- e. Raw material required
- f. Examples of strong and weak work
- g. Time and time-line
- h. Expert help required
- i. Final presentation
- j. In small group or as a class
- k. Distribution of work

2. Report on Gurgaon City -Is Gurgaon a bike friendly city or not? How can be made a bike friendly city?

Annexure – P1

- a. Research and survey
- b. Methodology
- c. Case-studies and examples of a bike friendly city
- d. Interviews
- e. Report specifications and design
- f. Examples of a strong and weak report
- g. Who is the audience? And the purpose?
- h. Work distribution?
- i. Time-line
- j. Resources required
- k. Expert help required
- l. In small teams or as class
- m. Final presentation

3. Innovation - Re-designed / re-modelled / re-invented bike

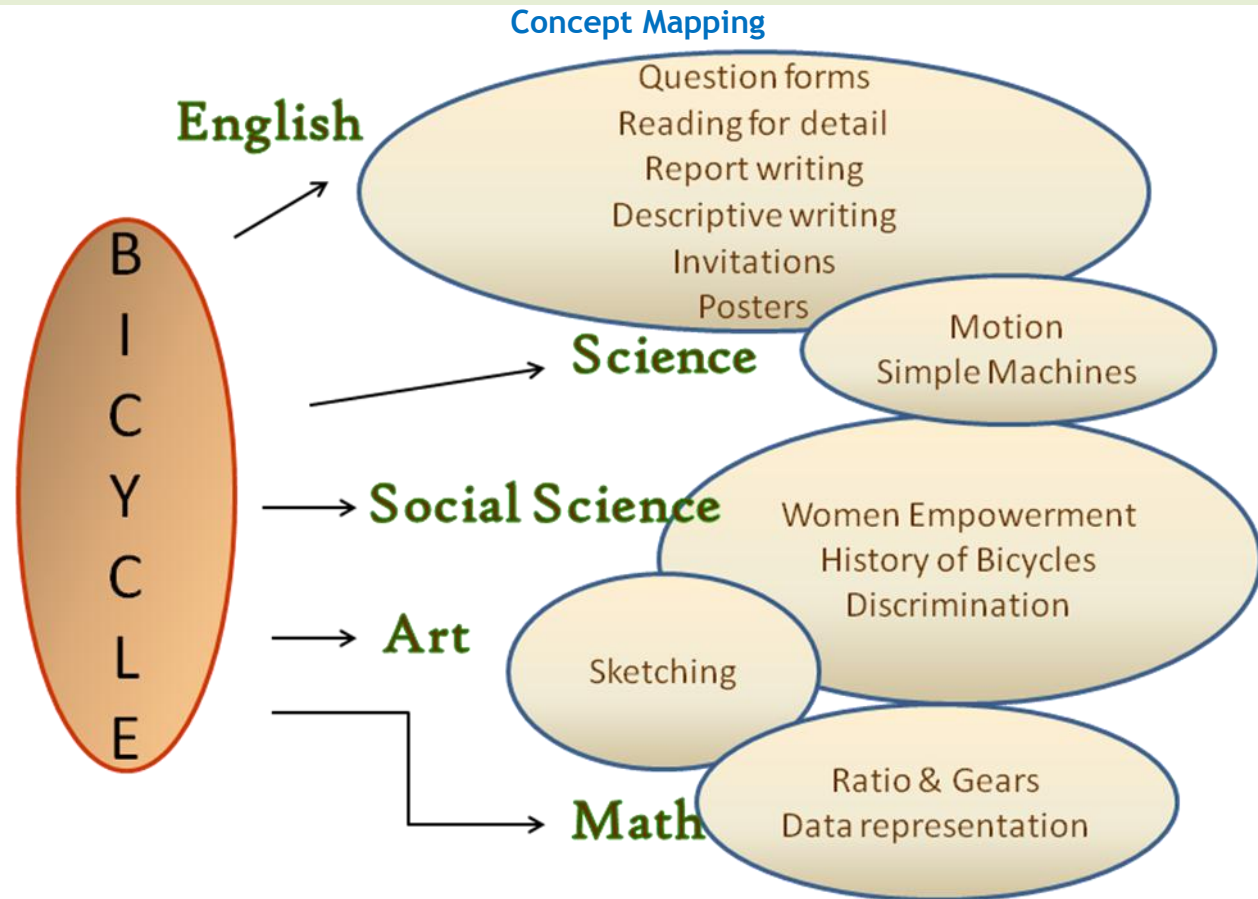
Annexure – P2

- a. Who is the audience?
- b. What is the purpose and use?
- c. Design specifications
- d. Raw material required
- e. Examples of strong and weak work



- f. Expert help required
- g. Final presentation
- h. In small group
- i. Distribution of work
- j. Time-line

The end products were planned as a culmination of each of the strands. These products would be the evidences of their learning.



HOOK

Visit to Rajeev Chowk (Case Study Strand)

Objective - to get a feel of the traffic in Gurgaon city and observe cycle riders.

Prework

- *One teacher did a recce of the area to find a safe and comfortable spot for students to observe*
- *Spoke to the local traffic police inspector informing about the visit*
- *Looking for a parking space for the bus*
- *Designed an observation sheet to ensure children stay focused in their observation*
- *Photocopied the sheets*
- *Decide the protocol of the outbound trip*
- *Booked the buses for the outbound trip*
- *Requisitioned for the medical kit*
- *Arranged for camera for documentation*
- *Informing the other department about the trip*
- *2 teachers accompany children*
- *One class goes at a time*

Students

- observe the traffic and fill up the questions in the observation sheet. They also interact with the traffic police personnel. **Annexure - 2**
- children share and discuss their observations in small groups and later present it in class

BICYCLE SKETCHING WORKSHOP

(constructing knowledge and craftsmanship strand)

Objective - to sketch the bicycle from the angle of observation



Time Required - 2 hour slot , 3 days

Children learn to sketch the bicycle from different angles under the guidance and supervision of the art teachers. They work on the feedback and make multiple drafts

Prework

- *Meeting with Art Dept to request for help*
- *Arranging for the required stationery (sketching pencils 2HB, charcoal pencil, fixers, cartridge paper, ordinary sketching sheets) through the resource room*
- *Adjustment of periods to have 2 hours at a stretch each for 3 days*
- *Camera for documentation*
- *Arranging for cycles by requesting children & teachers to volunteer and donate old bicycles*

BICYCLE LAB EXPERIENCE

(craftsmanship and constructing knowledge strand)

Objective - to get to know the parts of the bicycle and learn about the function of each part

Task - Dismantling, Cleaning, Repairing and Assembling Bicycles

Time required - 7 to 8 double periods

Children were divided into 4 groups and each group was given an old bicycle. With the help of the mechanics they

- a) Dismantled their cycles.
- b) Cleaned the parts with water, kerosene and oil, applied grease
- c) Made a list of the parts that needed repair or replacement
- d) Fixed puncture, repaired old parts
- e) Assembled the parts after procurement of new parts

The entire process took 7 or 8 days.

Prework

- *searched for and finalised bicycle mechanics who were willing to come to school*



- for 2 days in a week for a month*
- arranged for tools and other materials required for bike cleaning, through the bicycle expert*
- got the lab ready by arranging the furniture and cleaning the room*
- requisitioned for a cupboard to keep the tools safely*
- set protocols for lab work*
- made a list of what children need to get from home for lab work (apron and rag cloth)*
- requesting for a lab assistant*
- taking a stock of the materials procured*
- keeping an inventory*
- requisition for money to pay the expert and buying materials*

SHARING OF THE PRE-ASSESSMENT RUBRIC (constructing knowledge and craftsmanship strand)

Objective - to gauge the level of the children

The children go through the learning targets and mark the rubric with a coloured sketch pen.

Annexure - 3

Pework

- designing, typing and making copies of the pre-assessment sheets

PARTS OF THE BICYCLE AND ITS FUNCTIONS (constructing knowledge and craftsmanship strand)

Task - Finding out the names of different parts of cycles through worksheets and the tools used in the lab

Step 1- Students labelled as many parts as they knew on the picture of a bicycle
(worksheet -1)

Step 2- Students tried to match the name of the part with the appropriate function



(worksheet -2)

Step 3- Discussion in class

Step 4 -Lab experience - Students got to know the names of tools / parts from the expert in the lab during their hands-on experience

Step 5- Students were again given the same picture of a bicycle and asked to label its parts in a different coloured pen (worksheet -1)

Prework

- *Designed a task sheet with a bicycle picture*
- *Designed a worksheet with names of parts and their functions*
- *Typed, printed and photocopied the worksheets*

Annexure – 4 (a)Annexure – 4

(b)Annexure - 4 (c)

OUTBOUND TRIP TO DIFFERENT PARTS OF GURGAON

(Case Study Strand)

Objective - to specifically observe the use / number of bicycles in Gurgaon City

Area - Sadar Bazaar, Cyber City, Galleria

Time - 3 hours

Students were divided into 3 groups and each group was taken to one area. Here, we intermingled the children from the three sections. Three groups went to three different areas on the same day, same time.

They filled up the questions in the observation sheet.

Annexure – 5

Prework

- *Teachers did a recce of the area to find a safe and comfortable spot for students to observe*
- *Looking for a parking space for the bus*
- *Designed an observation sheet to ensure children stay focused in their*



observation

- *Photocopied the sheets*
- *Decided the protocol of the outbound trip*
- *Booked the buses for the outbound trip*
- *Requisitioned for the medical kit*
- *Arranged for camera for documentation*
- *Informing the other department about the trip*
- *2 teachers accompany children*
- *Teachers do a recci of the areas to find a safe and comfortable spot for students to observe and fill in their sheets*
- *An observation sheet was designed*

DATA COLLATION AND ANALYSIS

(Case Study Strand)

Objective - a) to enable children to make sense out of their observation and use the data for inferences

b) to see how the use of cycles differed in different areas of Gurgaon

Post Outbound

- A whole class discussion was conducted where students shared their observations and experience of their outbound trip
- *New groups were formed among students such that each group had students who visited different areas.*
- In their groups, they collated their data and each group created a bar graph on a chart paper to represent their data
- They presented their data in class followed by a brief discussion on 'Current status of bicycles in Gurgaon City'

Pework

The teachers did a bit of reading and discussion on data representation and analysis



HISTORY OF BICYCLES

(constructing knowledge and craftsmanship strand)

Objectives - to build background knowledge on - How bicycles evolved?

Step 1 - the children were given pictures of a few bicycles belonging to different periods in history and they were also given a text along with year, on the evolution of that particular model

The children had to guess and match the bicycle model to the text based on the reading provided.

Step 2 - Children were given a hand out of a reading material with pictures of early bicycles in the order that they evolved with a brief write up on each model

- a. Students individually read the hand out and penned down questions that came to their minds about each model.
- b. Then, they discussed possible answers for these questions in their groups.
- c. Analyzed the importance of the new parts in each model and how each model evolved.
- d. They also compared the pictures of different models of early bicycles to see the differences in their parts.

Prework

- *The teachers designed the reading material with pictures of early bicycles in the order that they evolved with a brief write up on each model.*
- *Typed, printed and photocopied the handouts*

Annexure - 5 (a)

Annexure - 5 (b)

HOLIDAY HOMEWORK

(constructing knowledge and craftsmanship strand)

Sketching the different models of Bicycles and making a timeline related to 'Evolution' of Bicycles

Annexure – 6

Students drew the different models of cycles and also wrote what was the additional part in



each model and what was its importance.

Prework

- *designed a tasksheet for making a timeline for evolution of cycles*
- *Typed, printed and photocopied the handouts*

MANUAL PREPARATION (END PRODUCT) (constructing knowledge and craftsmanship strand)

Task - Sketching individual parts of bicycles and finding out the function and working of each part.

Each student was allotted one bicycle part to draw, find out its function, history and think of an innovation for that part for future.

Thinking about how the part may change or evolve in future and what would be its additional use.

Prework

- *Designed a task sheet to draw any one part of the cycle and write its function, history etc*

Annexure – 7

Planning one of the end products: Bike manual and creating the cover page, critiquing and making multiple drafts of each page of the manual.

Providing pictures of individual parts for drawing, Reading content of each page, giving feedback, facilitating critiquing sessions, final editing and compiling.

Each student worked on one part; drawing the part and writing a short description and function.

After a critiquing session, they worked on the final draft .

Finalizing the manual on parts and their function of a bicycle.



Planning the Innovation on their repaired bikes in their teams.

Designing the innovation planner.

Students discussed in their groups and each group decided the innovation they wanted on their cycles.

Annexure – 8

Reading Case studies to see how Bicycles have played a role in the empowerment of women.

Pre Work

- *Researching for appropriate case studies and identifying two*
- *Planning how to facilitate the reading and discussion in the classroom.*

Students read the case studies and underlined the sentences that indicated how cycles have played a role in influencing **individuals** and the **society** (in two different colours). This was then shared by each student and taken up as a discussion in the class to see how bicycles have enabled empowerment of women.

Annexure - 9

Watching documentaries on bike friendly cities

Procured two documentaries

Students watched the documentaries and this was immediately followed by a brief Q and A Session (consolidation of learning) facilitated by teachers.

Reflecting through questions.

Made the worksheet for reflection.

Each student filled the reflection sheet

Annexure – 10

Analyzing what makes these cities bicycle friendly. Discussing and listing the parameters of a bicycle friendly city.

Planning how to facilitate the discussion in the whole class.

Innovation Workshop:

Annexure – 11 (a) & Annexure – 11 (b)

1) Visit to Firefox Outlet to note the different models of bikes available and the special feature and innovations in the various models

Making an observation Sheet

Each student filled the observation sheet



- 2) Discussing the difference between invention and innovation and elements of innovation.
A worksheet was designed and given to each student to write examples of inventions and innovations
- 3) Reworking on their innovation plans in their groups to make draft 2
- 4) Working on the repaired cycles to do the innovation planned in their Draft 2.

1) Designing a questionnaire to interview residents of Gurgaon (a of different strata of society) about bicycles as a mode of transport.

Annexure - 12

Each group discussed and listed the questions for interviewing the residents of Gurgaon.

Preparing the final questionnaire.

2) Conducting interviews to prepare a report on 'How bike friendly is Gurgaon'.

Each student interviewed 5 People.

3) Collating data

Preparing the worksheet to tabulate and represent data

Each group collated the data and drew bar graphs

4) Report writing

Showing sample reports and facilitating discussion to elicit important elements of a report.

Students read the samples and after discussion make a list of important elements of a report.

5) They prepared a report on 'How bicycle friendly is Gurgaon' giving recommendations to make it a bicycle friendly city.

Each group writes a report with their recommendations.

One member from each group was chosen for the editorial team for writing the final draft of the report. The editorial team wrote the final report. (Each class has a final report to be presented).

6) Presenting their reports (recommendations) to the Deputy Commissioner (Traffic).

Pre Work

- *Fixing an appointment through the school with the Dy Commissioner to take students to hand over reports.*



Culmination of the Bicycle Expedition:

Pre Work

- *Identifying a school and tying up with them for bringing their students with a few teachers to our school, fixing up the date, logistics of their visit, Invitation to parents of our students through e-mail.*
- *Preparing our students for the event: Welcoming the guests, a brief speech about our expedition, a brief about the experts from whom we took help (cycle mechanic), vote of thanks.*
- *Getting the manuals and reports printed*
- *Tying up with grade 7 students and teachers for organizing the Bike Olympics for our students and guest students.*

Our students made invitation cards for their parents for the event and handed them over to them at home. Students made the schedule of the whole event for parents and guests.

Annexure - 13 (a)

Annexure - 13(b)

- 1) Donation of cycles to students of village school
- 2) Releasing the bicycle manuals and the reports by the guest (founder of the school _ Guldasta)
- 3) Bicycle Olympics conducted by Grade VII students

Our students took part in Bicycle Olympics with children of village school and donated the bicycles to them.



ANNEXURES



PLAN FOR GURGAON AS BICYCLE FRIENDLY CITY

Objective	Flow	Detailed Plan (How)
Children are able to identify the bike friendly parameters	The children identify the features that help decide whether a city is bike friendly or not	<p>Children watch a film of a bike friendly city and note down the features that help make that city bike friendly</p> <p>Children also read a case study of a bike friendly city and identify the reasons for it to be considered bike friendly.</p> <p>Question</p> <p>How did these cities become bike friendly?</p> <p>What are the factors that enabled these cities to become bike friendly?</p>
Is Gurgaon Bike friendly	Children reason out whether Gurgaon is bike friendly	<p>1. Observations – out bound experience</p> <ul style="list-style-type: none"> Step – 1 Children refer to their observations on traffic and have discussions in groups and based on their discussions children make two columns and list - what was favouring the bike friendly criteria / and what was not Step – 2 Take them to the bike lane in Gurgaon and analyze why it's popular or not popular <p>Children visit the separate lane for bikes and make notes as to whether it is being used frequently. They reason out - if yes, why? or If not, why?</p> <p>2. Interview people / expert</p> <p>Interview people to find out their views</p> <p>Interview people who ride a bike to work place</p> <p>Interview parents and ask them why would they not allow / not allow their children to ride a bike to school</p> <p>Interact with the cycle dealers and compare the sale of bike in Gurgaon with any other similar sized city</p> <p>Interview an expert</p> <p>Meet bikers and take their opinion as to why most Indian cities are not bike friendly</p>



The children are able to put their observations and assessments in a structured and systematic manner	The children write a report on their findings	<p>Children are given a brief on how to write a report</p> <p>Children write a report on their findings about Gurgaon city</p> <p>The children arrive at recommendations to make Gurgaon bike friendly and present it to the commissioner of Gurgaon Municipal Corporation</p>
Children try and popularize the use of cycles as a sustainable means of transport in the city	Children run a campaign to popularize bike travel in Gurgaon	Children organize a rally in Gurgaon to popularize use of bicycles as future transport



Plan for Innovation Workshop

Flow

1) Visit to Fire -fox bicycle shop, so that children can visually see various types of innovation present in the bicycles. } Day 1

2) Discussing Meaning of Innovation.
3) Differentiate between Innovation and Invention with the help of examples.
4) Worksheet on Innovation and Invention. } Day 2
*Reflection in class and worksheet as Homework

* Questions for reflection in class for Day 2

A) What were the needs that lead to making of different types of Innovative bicycles?

B) What is the difference between innovation and Invention? (Discuss with the help of examples)

5) Discussion on 'So what it takes to innovate'. } Day 3

6) Critiquing their own innovation plan and reworking on them.
7) Feedback on new plans. } Day 4

8) Working on the bicycles to innovate them in groups. } After Khoj



Knowledge and Conceptual targets

1. I can explain the functioning of different parts of the bicycle
2. I can explain the working of a bicycle as a complete system
3. I can explain the history and evolution of bicycle with all the major inventions and breakthroughs overtime
4. I can explain why the bicycle should be the preferred mode of transportation in future
5. I can explain the parameters of a bike friendly city

Skill targets

1. I can sketch the different models of bicycles from origin till date (in chronological order).
2. I can sketch a bicycle from the angle I am observing.
3. I can ask questions that invokes curiosity and inquiry in me and my peers
4. I can observe and make connections between what I am studying and the real world and try to explain it with my own reasoning.

Craftsmanship and Character targets

1. I can re-design / re-invent / re-model a part of the bicycle
2. I make multiple drafts, re-design and re-work before I come out with the final product
3. I observe the work of others and learn from it
4. I am an active participant and take initiative in my team
5. I can handle tools and raw material in an effective and respectful manner.
6. I clear my workstation on time after the completion of a task.



The Heritage School, Gurgaon
Bicycle Project
Outbound Experience – Observation of City Traffic
Grade – 6 ____



Name _____

Date _____

The area / Locality of traffic Observed _____

Duration of time spent in observation _____

Pointers for focused observation

Tick the vehicles you observed

Bus ☐

Tempo ☐

Car ☐

Mini bus ☐

Jeeps ☐

cycle ☐

Motor bikes ☐

Van ☐

Cycle rickshaw ☐

Auto rickshaw ☐

Any other _____

1. Observe the vehicles for five minutes and list out 5 vehicles you saw the most in order of its frequency.

2. What is the condition of the road? Observe and write _____

3. Which of the vehicles (you saw), pollute _____



4. Which of the vehicles (you saw), do not pollute _____

5. What are the different kinds of pollution you witnessed?

6. Watch the traffic situation and write your observations briefly _____

Observe BICYCLES for about 15 minutes and answer the questions given below.

7. Do you think it is easy to ride a bike on the main road? Yes / No

If yes, Why? _____

If no, Why? _____

8. Is the cyclist following the traffic rules? Yes / No

If yes, what did you observe to arrive at this conclusion _____

If No, what did you observe to arrive at this conclusion

9. Do they have a separate lane for riding their bicycle? _____

10.How safe is the cyclist in terms of pollution Very safe / quite safe / not safe

11.How safe is the cyclist in terms of traffic Very safe / quite safe / not safe

12.Would you be comfortable if you ride a bike? yes / No


Why? _____

13.If the cyclists rings a bell to warn others, can he / she be heard? Yes / No

14.Any other observations about cyclist

<u>Levels of Progress</u> ↓		Knowledge and Conceptual Targets			
Exemplary Understanding or Proficiency <i>I have exceeded the target</i>					
Accomplished Understanding or Proficiency <i>I have met the target</i>					
Developing Understanding or Proficiency <i>I am more than half way there</i>					
Beginning Understanding or Proficiency <i>I have started making progress</i>					
No Understanding and Proficiency <i>Haven't started making progress yet</i>					
<u>Knowledge and Conceptual Targets</u> →	I can explain the functioning of different parts of the bicycle	I can explain the working of a bicycle as a complete system	I can explain the history and evolution of bicycle with all the major inventions and breakthroughs overtime	I can explain why the bicycle should be the preferred mode of transportation in future	I can explain the parameters of a bike friendly city
<u>Levels of Progress</u> ↓		Skills Targets			



Exemplary Understanding or Proficiency <i>I have exceeded the target</i>					
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<u>Skills Target</u> 	I can sketch the different models of bicycles from origin till date (in chronological order).	I can sketch a bicycle from the angle I am observing.	I can ask questions that invokes curiosity and inquiry in me and my peers	I can observe and make connections between what I am studying and the real world and try to explain it with my own reasoning.	

Levels of Progress



Craftsmanship and Character Targets

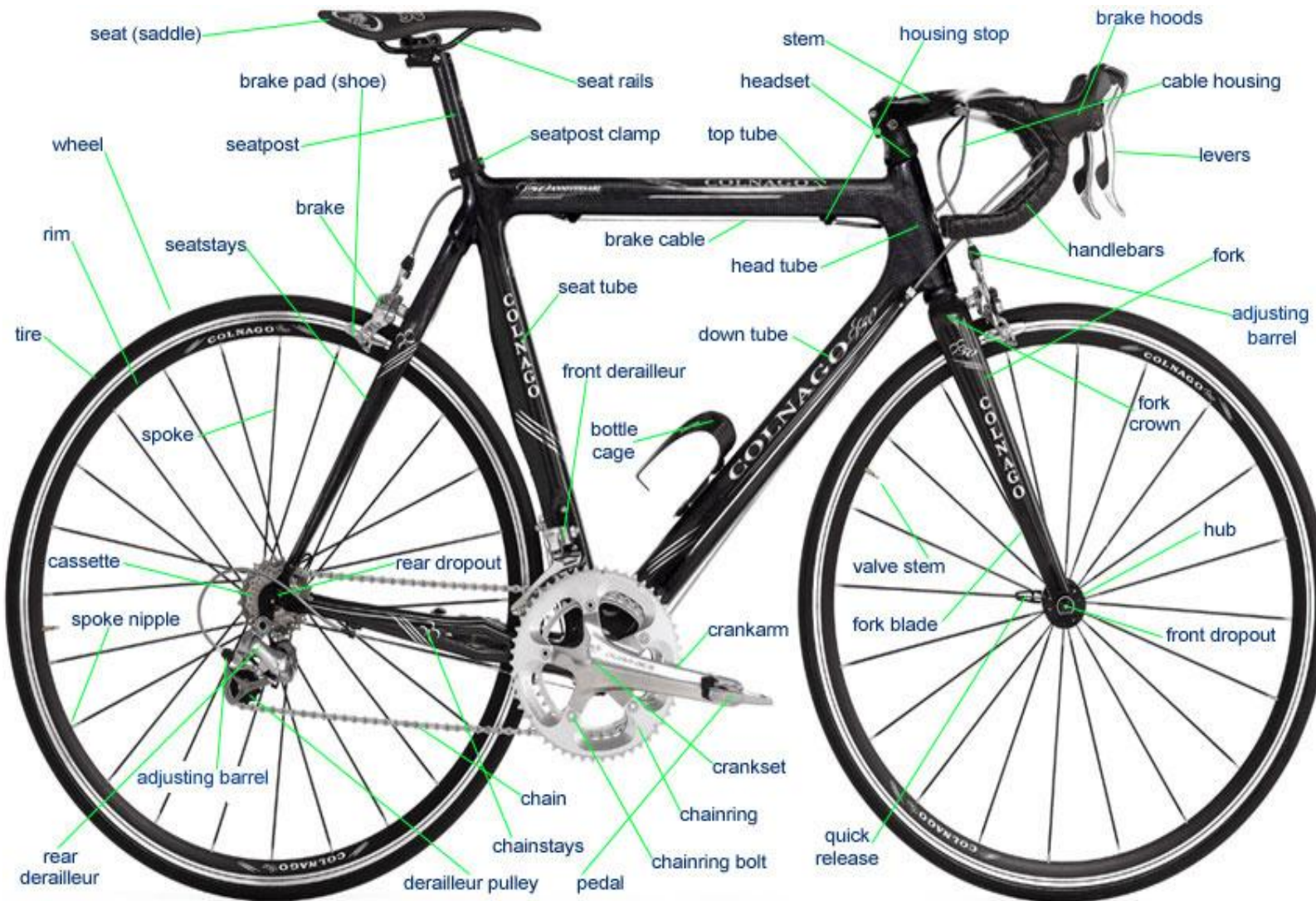


Exemplary Understanding or Proficiency <i>I have exceeded the target</i>						
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Beginning Understanding or Proficiency <i>I have started making progress</i>						
No Understanding and Proficiency <i>Haven't started making progress yet</i>						
<u>Craftsmanship and Character targets</u> →	I can re-design / re-invent / re-model a part of the bicycle	I make multiple drafts, re-design and re-work before I come out with the final product	I observe the work of others and learn from it	I am an active participant and take initiative in my team	I can handle tools and raw material in an effective and respectful manner.	I clear my workstation on time after the completion of a task

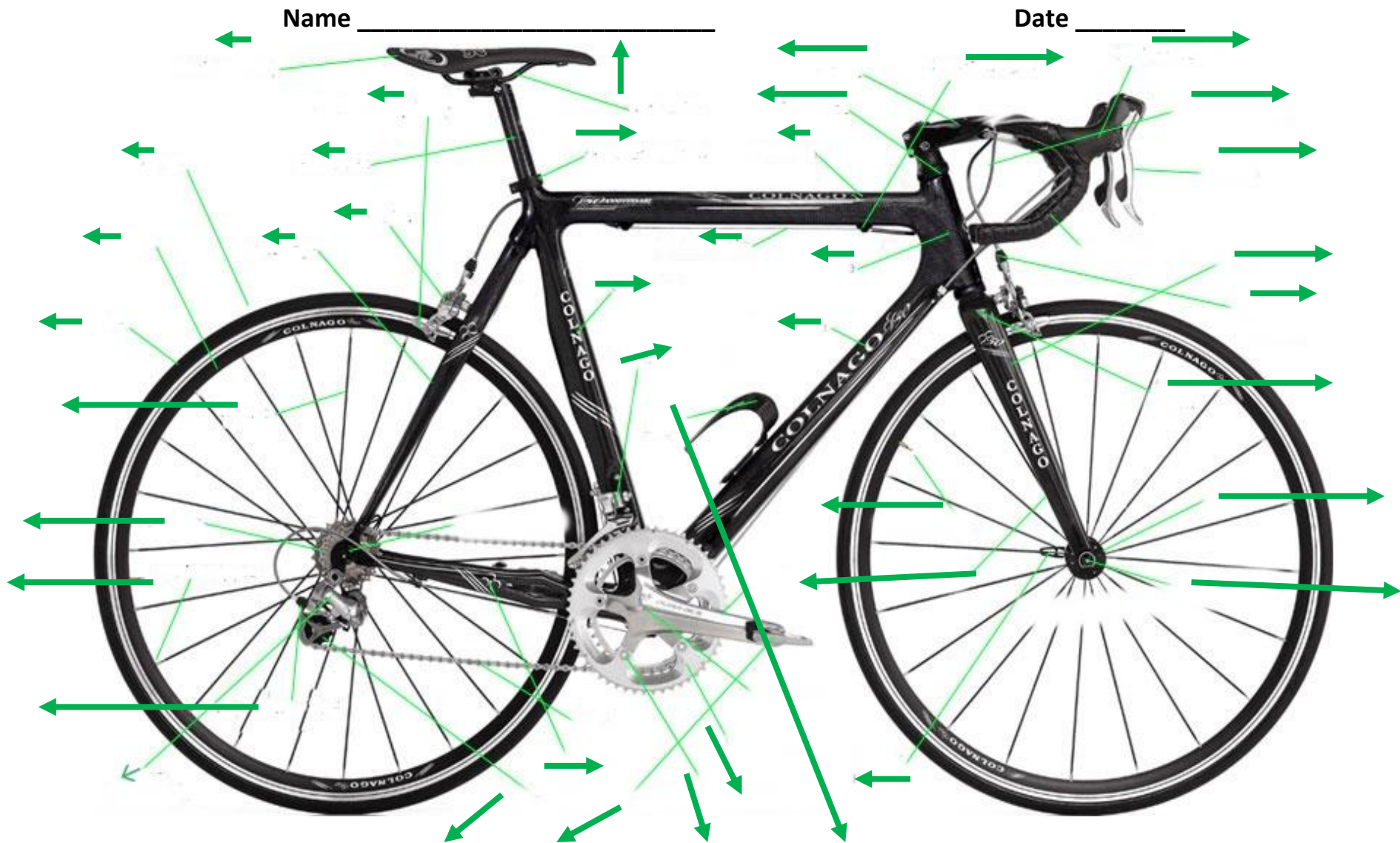
The Heritage School, Gurgaon
Bicycle Project
Parts of a Bicycle
Grade – 6 ____

Name _____

Date _____



The Heritage School, Gurgaon
Bicycle Project
Label the parts of a Bicycle
Grade – 6 ____





Grade 6 ____

Project - Bicycle

Name _____

Date _____

Let's explore the parts of a bicycle.....

Complete the following table by picking the appropriate bicycle part from the HELP BOX given below and filling column A to match the description/function given in column B

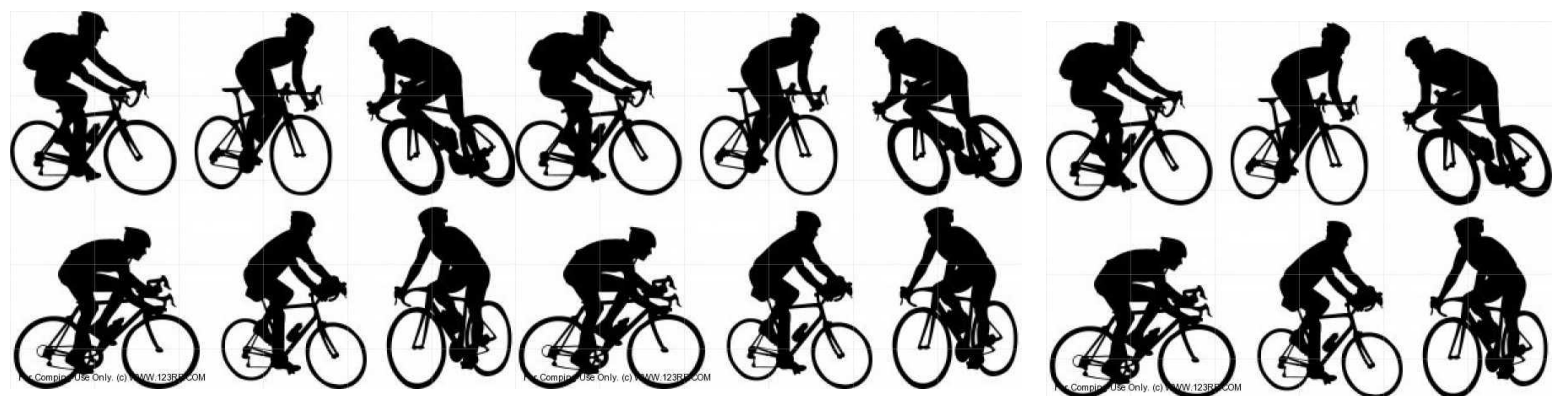
Frame, Crankset, Axle, Bottle cage, Chain, Head tube, Pedal, Wheel, Brake,
Kickstand, Cable, Handle bar, Bar ends, Fork, Seat post, Spoke, Saddle,



Column A Bicycle Part	Column B Description/function
	A rod that serves to attach a wheel to a bicycle and provides support for bearings on which the wheel rotates. Also sometimes used to describe suspension components
	Extensions at the end of straight handlebars to allow for multiple hand positions.
	A device that facilitates rotation by reducing friction. The most common types are ball, roller and sleeve.
	A holder for a water bottle
	Used to stop the bicycle.
	A metal cable enclosed in part by a metal and plastic housing that is used to connect a control, such as a brake or shifting lever, to the device it activates.
	A system of interlinking pins, plates and rollers that transmits power from the front cranks to the rear wheel.
	Composed of cranks and chain rings
	Tube on a bicycle frame that runs from the head tube to the bottom bracket.



	A mechanical assembly that integrates a bicycle's frame to its front wheel and handlebars, allowing steering by virtue of its steerer tube.
	The mechanical core of a bicycle, it provides points of attachment for the various components that make up the machine.
	A lever attached, usually using an intermediary stem, to the steerer tube of the fork. Allows steering and provides a point of attachment for controls and accessories.
	The tube of a bicycle frame that contains the headset
	The core of a wheel - contains bearings and, in a traditional wheel, has drilled flanges for attachment of spokes.
	A folding attachment used to park a bicycle upright. Usually mounts to frame near bottom bracket, sometimes near rear dropouts.
	Mechanical interface between foot and crank arm.
	Also seat. What you sit on.
	A post that the seat is mounted to. It slides into the frame's seat tube and is used to adjust ride height depending how far into the seat tube it is inserted.
	For bicycles with suspensions, a device that limits the rate at which suspension rebounds after absorbing an impact.
	Connects wheel rim to hub. Usually wire with one end swaged to form a head and one threaded end. A typical wheel has 36 of these.
	These are usually pneumatic. A tubular one is glued to the wheel rim; most of these use tubes, but tubeless ones and rims are increasingly common.
	Port for adding or releasing air from the inner tube.
	Traditionally and most commonly spoked.



Name; _____

VI ____

Date: _____

A Quick History of Bicycles

Read the various events given below and write down questions that come to your mind in the box provided.

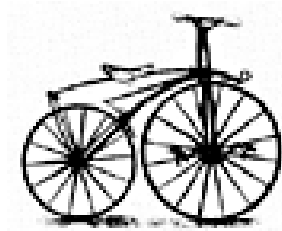
1817 The Walking Machine



In 1817 Baron von Drais invented a walking machine that would help him get around the royal gardens faster: two same-size in-line wheels, the front one steerable, mounted in a frame which you straddled. The device was propelled by pushing your feet against the ground, thus rolling yourself and the device forward in a sort of gliding walk. The machine became known as the Draisienne or hobby horse. It was made entirely of wood. This enjoyed a short lived popularity as a fad, not being practical for transportation in any other place than a well maintained pathway such as in a park or garden.

My Questions:

1865 The Velocipede or Boneshaker



The next appearance of a two-wheeled riding machine was in 1865, when pedals were applied directly to the front wheel. This machine was known as the velocipede ("fast foot"), but was popularly known as the bone shaker, since it was also made entirely of wood, then later with metal tyres, and the combination of these with the cobblestone roads of the day made for an extremely uncomfortable ride. They also became a fad, and indoor riding academies, similar to roller rinks, could be found in large cities.

My Questions:

1870 The High Wheel Bicycle

1870 The High Wheel Bicycle





In 1870 the first all metal machine appeared. (Previous to this metallurgy was not advanced enough to provide metal which was strong enough to make small, light parts out of.) The pedals were still attached directly to the front wheel. Solid rubber tyres and the long spokes of the large front wheel provided a much smoother ride than its predecessor. The front wheels became larger and larger as makers realized that the larger the wheel, the farther you could travel with one rotation of the pedals. You would purchase a wheel as large as your leg length would allow. This machine was the first one to be called a bicycle ("two wheels"). These bicycles enjoyed a great popularity among young men of means (they cost an average worker six month's pay).

Because the rider sat so high above the center of gravity, if the front wheel was stopped by a stone or rut in the road, or the sudden emergence of a dog, the entire apparatus rotated forward on its front axle, and the rider, with his legs trapped under the handlebars, was dropped unceremoniously on his head. Thus the term "taking a header" came into being.

My Questions:

1878 Ordinaries



Improvements to the design was visible, many models with the small wheel in the front was introduced to eliminate the tipping-forward problem. These designs became known as high-wheel safety bicycles. Since the older high-wheel designs had been known simply as bicycles, they were now referred to as "ordinary bicycles" in comparison with the new-fangled designs, and then simply as "ordinaries."

My Questions:

1889 The Hard-Tyred Safety

Further improvement in metallurgy sparked the next innovation, or rather return to previous design. With a metal that was now strong enough to make a fine chain and sprocket small and light enough for a human being to power, the next design was a return



to the original configuration of two same-size wheels, only now, instead of just one wheel circumference for every pedal turn, you could, through the gear ratios, have a speed the same as the huge high-wheel. The bicycles still had the hard rubber tyres, and in the absence of the long, shock-absorbing spokes, the ride they provided was much more uncomfortable than any of the high-wheel designs. Many of these bicycles of 100 years ago had front and/or rear suspensions. These designs competed with each other,

your choice being the high-wheel's comfort or the safety's safety, but the next innovation tolled the death of the high-wheel design.

My Questions:

1890 The Pnuematic-Tyred Safety



The pneumatic tire was first applied to the bicycle by an Irish veterinarian who was trying to give his young son a more comfortable ride on his tricycle. This inventive young doctor's name was Dunlop. Sounds familiar? Now that comfort and safety could be had in the same package, and that package was getting cheaper as manufacturing methods improved, everyone clamored

to ride the bicycle.

My Questions:



1894 Bicycles and women



Fashion designers re-introduce the bloomer costume, freeing women from the restrictive corsets and dress of the time. Susan B. Anthony a famous civil rights activists who fought for women's right across America said "Let me tell you what I think of bicycling. I think it has done more to emancipate women than anything else in the world. I stand and rejoice every time I see a woman ride by on a wheel. It gives woman a feeling of freedom and self-reliance."

(Bicycling was so popular in the 1880s and 1890s that cyclists formed the League of American Wheelman (still in existence and now called the League of American Bicyclists). The League lobbied for better roads, literally paving the road for the automobile.)

My Questions:

1898 - 1972 Bicycles and its use

1898 Bicycles popularity in the United States declines.

1970 The Earth Day celebration focused on increasing awareness about the level of consumption of natural resources, air pollution, and destruction of the natural environment. This generated a new spurt in the growth of bicycle sales and bicycling, especially around college campuses.

1972 Bicycles outsell cars in the United States --13 million to 11 million.

My Questions:

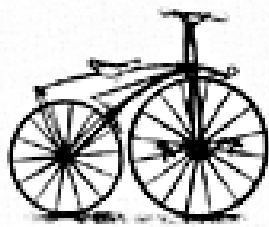
The Walking Machine



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- Why was the walking machine not in use for long?
- For any innovation to sustain what are some of the important criteria?

The Velocipede or Boneshaker



The next appearance of a two-wheeled riding machine was in 1865, when pedals were applied directly to the front wheel. This machine was known as the velocipede ("fast foot"), but was popularly known as the bone shaker, since it was also made entirely of wood, then later with metal tyres, and the combination of these with the cobblestone roads of the day made for an extremely uncomfortable ride. They also became a fad, and indoor riding academies, similar to roller rinks, could be found in large cities.

- What is the new part added to this cycle?
- Why do you think Velocipedes were called 'Boneshakers'?

The High Wheel Bicycle



In 1870 the first all metal machine appeared. (Previous to this metallurgy was not advanced enough to provide metal which was strong enough to make small, light parts out of.) The pedals were still attached directly to the front wheel. Solid rubber tyres and the long spokes of the large front wheel provided a much smoother ride than its predecessor. The front wheels became larger and larger as makers realized that the larger the wheel, the farther you could travel with one rotation of the pedals. You would purchase a wheel as large as your leg length would allow. This machine was the first one to be called a bicycle ("two wheels"). These bicycles enjoyed a great popularity among young men of means (they cost an average worker six month's pay).

Because the rider sat so high above the center of gravity, if the front wheel was stopped by a stone or rut in the road, or the sudden emergence of a dog, the entire apparatus rotated forward on its front axle, and the rider, with his legs trapped under the handlebars, was dropped unceremoniously on his head. Thus the term "taking a header" came into being.

The

High Wheel Tricycle



While the men were risking their necks on the high wheels, ladies, confined to their long skirts and corsets, could take a spin around the park on an adult tricycle. These machines



also afforded more dignity to gentlemen such as doctors and clergymen.

- Why do you think adult tricycle was used by women, doctors and clergymen?
- Have you seen a tricycle? How is it different from a rickshaw?

The High Wheel Safety



Improvements to the design was visible, many models with the small wheel in the front was introduced to eliminate the tipping-forward problem. These designs became known as high-wheel safety bicycles. Since the older high-wheel designs had been known simply as bicycles, they were now referred to as "ordinary bicycles" in comparison with the new-fangled designs, and then simply as "ordinaries."

- What is the role of a front small wheel?

The Hard-Tyred Safety

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to the original configuration of two same-size wheels, only now, instead of just one wheel circumference for every pedal turn, you could, through the gear ratios, have a speed the same as the huge high-wheel. The bicycles still had the hard rubber tyres, and in the absence of the long, shock-absorbing spokes, the ride they provided was much more uncomfortable than any of the high-wheel designs. Many of these bicycles of 100 years ago had front and/or rear suspensions. These designs competed with each other,

your choice being the high-wheel's comfort or the safety's safety, but the next innovation tolled the death of the high-wheel design.

- Why J. K. Starley felt the need for making changes in the 'Ordinary or High Wheeler Bicycle'?
- Can you guess what the next innovation was?

The Pnuematic-Tyred Safety



The pneumatic tire was first applied to the bicycle by an Irish veterinarian who was trying to give his young son a more comfortable ride on his tricycle. This inventive young doctor's name was Dunlop. Sounds familiar? Now that comfort and safety could be had in the same package, and that package was getting cheaper as manufacturing methods improved, everyone clamored

to ride the bicycle.

- What happened after the Pneumatic rubber tyres were used in bicycles and why did it happen?
- What were the major inventions in bicycle? Or inventions that changed the design or functions of bicycle? What is the difference between innovations and inventions?



1894 Bicycles and women



Fashion designers re-introduce the bloomer costume, freeing women from the restrictive corsets and dress of the time. Susan B. Anthony a famous civil rights activists who fought for women's right across America said "Let me tell you what I think of bicycling. I think it has done more to emancipate women than anything else in the world. I stand and rejoice every time I see a woman ride by on a wheel. It gives woman a feeling of freedom and self-reliance."

- Why bicycles are considered as the symbol of freedom for women?

(Bicycling was so popular in the 1880s and 1890s that cyclists formed the League of American Wheelman (still in existence and now called the League of American Bicyclists). The League lobbied for better roads, literally paving the road for the automobile.)

1898 - 1972 Bicycles and its use

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1972 Bicycles outsell cars in the United States --13 million to 11 million.

- After the decline in the popularity of bicycle in 1898, what lead to the boom (increase) in the bicycle sales and use?



The Heritage School, Gurgaon
Bicycle Project
Outbound Experience – Observation of City Traffic
Grade – 6 _____

Annexure – 5

Name _____

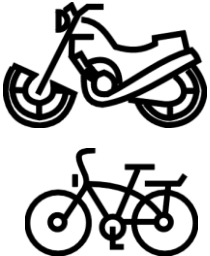
Date _____

The area / Locality of traffic observed _____

Duration of time spent observing _____

A. Pointers for focused observation

1) How many of the following vehicles did you observe? (Write only in the column that is applicable to you)

	Sadar Bazaar	Galleria	Office	
No. of Cars	<input type="text"/>	<input type="text"/>	<input type="text"/>	
No. of Motor bikes	<input type="text"/>	<input type="text"/>	<input type="text"/>	
No. of Bicycles	<input type="text"/>	<input type="text"/>	<input type="text"/>	

2) Watch the traffic situation and write your observations briefly

B. Observe BICYCLES on the road and answer the questions given below.

1. Would you be comfortable if you have to ride a bike on the road you are observing?
yes / No

Why? _____



2. How safe is the cyclist in terms of traffic? _____

If your answer indicates **unsafe** then why do you think so?

3. How safe is the cyclist in terms of pollution? _____

4. Is the cyclist following the traffic rules? Yes / No

What did you observe to arrive at this conclusion? _____

5. Do they have a separate lane for riding their bicycle? _____

6. If the cyclist rings a bell to warn others, can he / she be heard?

Yes / No

7. Any other observations about the cyclist





C. Observe any 10 cars randomly and fill in the data.

No of passengers in each car

Car – 1

Car – 6

Car – 2

Car – 7

Car – 3

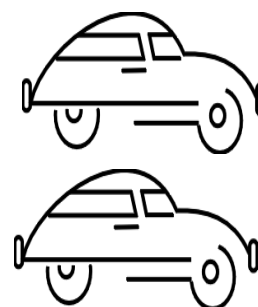
Car – 8

Car – 4

Car – 9

Car – 5

Car – 10



D. Observe a few owner driven vehicles and complete the data.

Guess the profession of the people driving a car

_____, _____, _____, _____, _____

Guess the profession of the people riding a motor bike

_____, _____, _____, _____, _____

Guess the profession of the people riding bicycle

_____, _____, _____, _____, _____



The Heritage School, Gurgaon
Evolution of Bicycle Design
Sketching Template

Annexure – 6

Name _____

Date _____

Year _____

Model _____

Year _____

Model _____

Why did this invention happen?

What were the problems in this bicycle?

What were the changes in this model?

What were the problems in this bicycle?



The Heritage School, Gurgaon
Evolution of Bicycle Design
Sketching Template

Name _____

Date _____

Year _____

Model _____

Year _____

Model _____

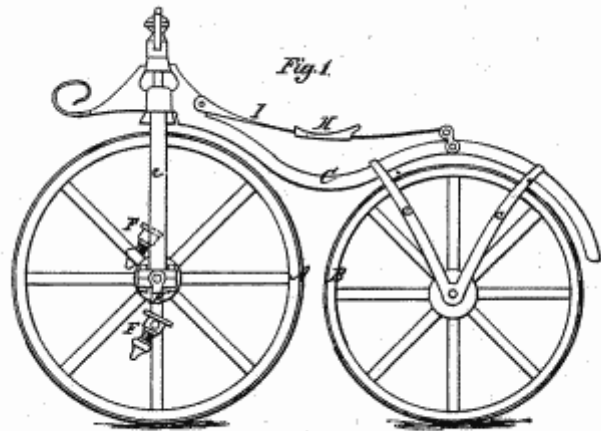
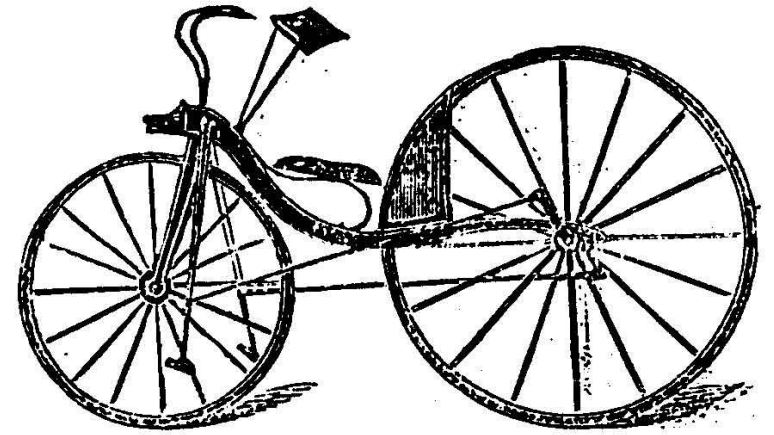
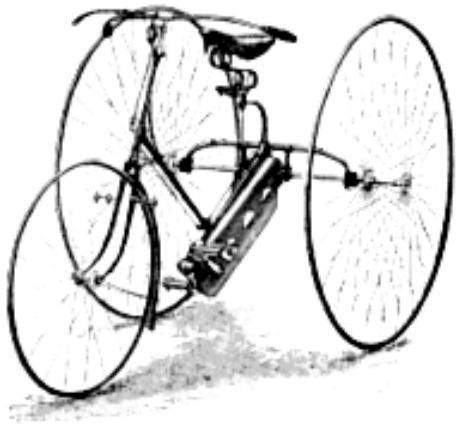
What were the changes in this model?

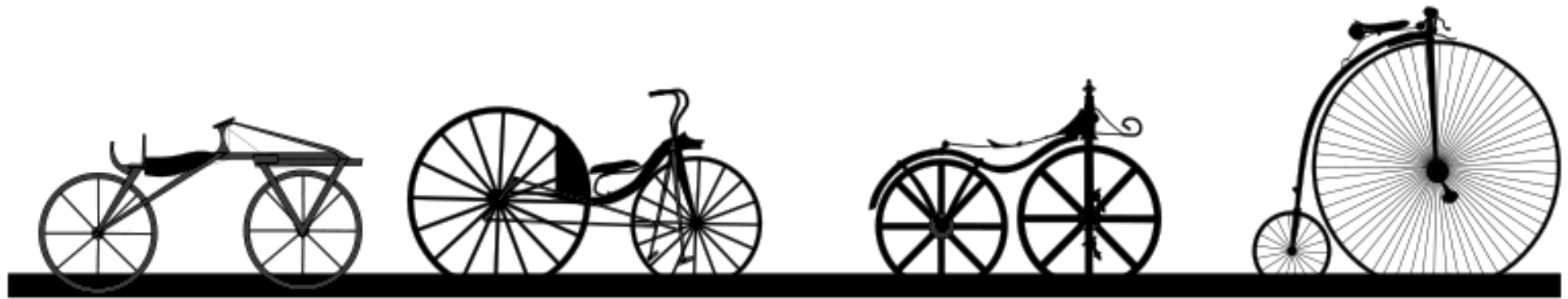
What were the problems in this bicycle?

What were the changes in this model?

What were the problems in this bicycle?







1818
drais ine
Karl von Drais
Germany

1830
two-wheel velocipede
Thomas McCall
Scotland

1860
pedal-bicycle
Pierre Michaux
France

1870
high-wheel bicycle
James Starley
France



1885
safety bicycle
John Kemp Starley
England

1960s
racing bike
--
USA

Mid 1970s
mountain bike
--
USA



The Heritage School, Gurgaon

Bicycle project

Grade 6 ____ Holiday Assignment

Name: -----

Name of the Bicycle part assigned to you:-----

Observe the bicycle part assigned to you and make a neat free hand sketch of the part with a pencil in the space provided.

- Describe the part in a few sentences:

.....

.....



.....

.....

.....

.....

.....

- Describe its function or what role it plays in the bicycle:

.....

.....

.....

.....

.....

.....

.....

- What will happen to the bicycle if this part becomes dysfunctional ?

.....

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.....

.....

.....

- Where else can you see this part in your environment ?

.....

.....

.....

.....

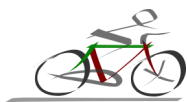
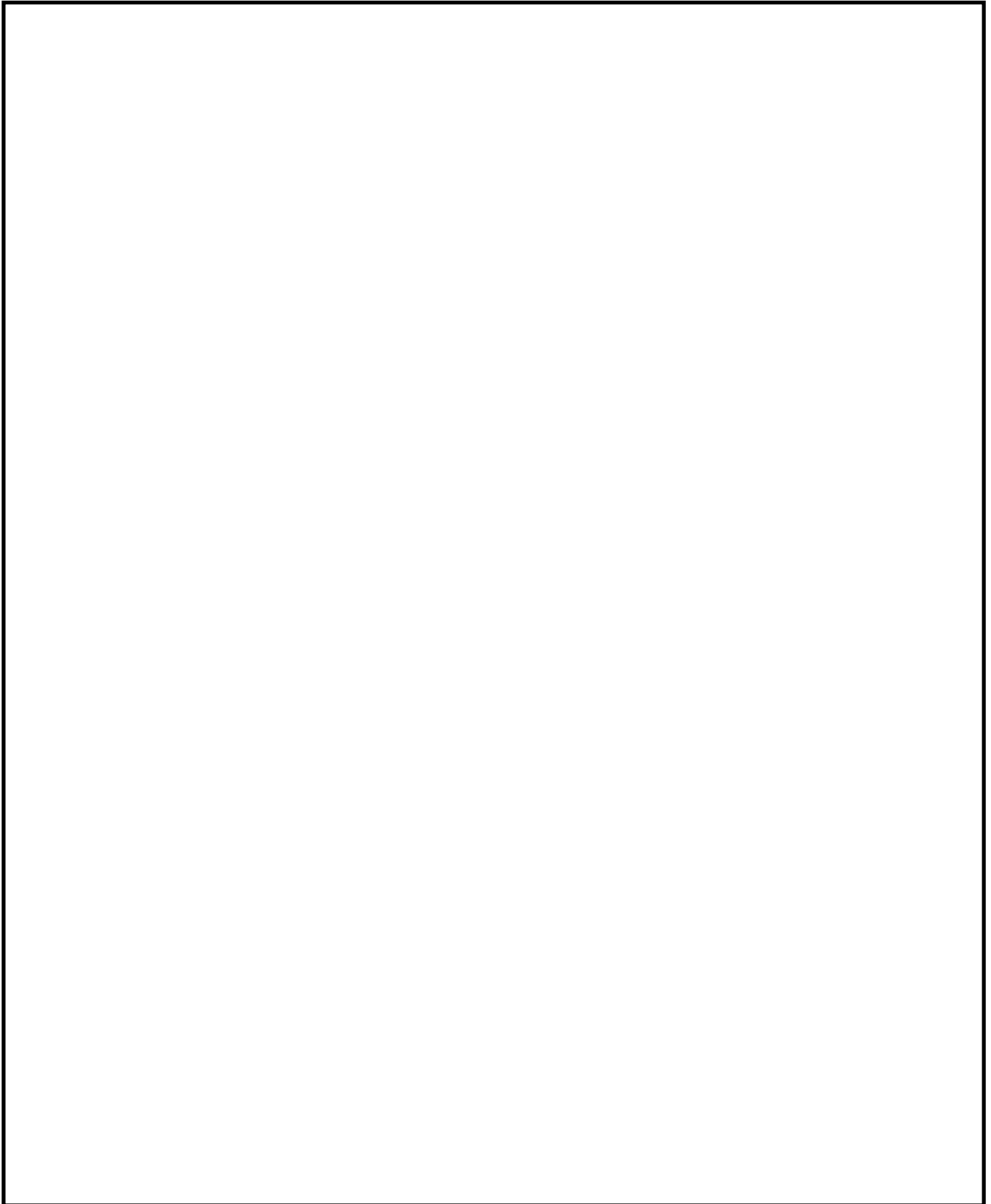


- Explain how you can maintain this part.

- Think how this part can be improvised and make a neat sketch of the improvisation.
How will this improvisation help the running of the bike?

-

Sketch of the improvised version





The Heritage School, Gurgaon

Bicycle Innovation Planner



Name:.....

VI.....

Date.....

Team & Team Members

Grade - _____
Educator - _____
Resource person - _____



Your Innovation (A brief write up)

[illegible]

What difference will your innovation make to your cycle?

Duration of Creation (No of periods) _____

Connections beyond the classroom	
<p>Fieldwork (Sites for research and data collection, places you need to get information from)</p>	<p>Service (need for the innovation, how will your innovation be useful?) What difference will your innovation make to the rider?</p>
<p>Who is the Audience? (Target audience of your final product / innovation; Who will you present it to?)</p> <p>How will you present it? (mode of presentation)</p> <p>Day, Date, Time & Venue</p>	<p>Experts Help required(For authentic research help, feedback , guidance, planning, designing, resource)</p>



Plan for the Innovation (How you will go about? What steps will you take as a team?)				
Steps taken	Support Required (people or facility)	Resource Required	Time Required (No of Periods)	Responsibility (mention the names)





Case Study from Tamil Nadu.

For years, fetching water for Mariamman of Siranjeni village was one of many dreary chores. When the village well dried up in summer, she had to trudge 2 km to a neighboring village to secure water. Now fetching water is far easier; all she has to do is take her bicycle. Like Mariamman, thousand of women in Pudukottai district in Tamil Nadu are using their bicycles, not just to fetch water but for a myriad utility trips. But it hasn't always been this way.

It was novel literacy drive, launched in 1991, that has lead to 50,000 women in the 3,000 villages of Pudukottai (370km from Madras, India) to learn to ride bicycles. Originally, the scheme had four elements; literacy, arithmetic, awareness and application. Seeing an additional need, collector Sheela Rani Chungat added a fifth element -- mobility. These days Pudukottai women sing "we have learnt to cycle, brother/ and with it, we have turned the wheel of our lives, brother". As the song bears out, the results of Chungat's initiative have far exceeded expectations.

In the harvest season, women now carry bundles of ripe stalk on a cycle, not on their heads. When the men work in the fields, their lunches are delivered to them by their wives on wheels. And sometimes, newly mobile mothers save their children long, tiring walks to and from the village.

The cycle-training program started as a no-cost affair. Villagers lent one or two cycles. Initially classes were held after dark, helping the students to get over their initial shyness and reluctance. "There were few people around to make fun of us when we fell down," recalls Mariamman.

When some women began showing off their success on their husbands' and brothers' cycles, the bug caught on. Next, the program coordinators arranged for bank loans to buy bikes. Still, some women have been unable to derive the fullest mileage from their recently acquired skills. Most do not have the money to buy their own cycles and their fathers, brothers and husbands, get first preference on family bikes. There are also family-imposed restrictions -- chores, sewing classes and primary health care are all right, but movies, cruising and fun outings are an absolute no-no.

Case study from Bihar

Bihar has a refreshing new motif: girls in uniform on shiny new cycles, confident and assured, simply because they go to school. A little over three years ago, the Bihar government launched the Mukhyamantri Balika Cycle Yojana—the chief minister's cycle scheme for girls. The plan entitled girls in class 9 and 10 to a free cycle from the state or R 2,000 to buy one—mirroring a scheme started by Tamil Nadu but revolutionary all the same for a state like Bihar, where the girl child has traditionally received short shrift (as in most of India).

What might have seemed a populist and seemingly empty gesture has actually brought about a revolution in a state known not so long ago for its crime, lack of development and a chief minister known more for his rhetorical bombast. It was his much less flamboyant successor Nitish Kumar who kicked off the cycles for girls programme.

The numbers reflect a dramatic impact: Since 2007-08, Bihar has spent R174.36 crore on cycles for 871,000 school girls. Girls enrolling in schools in the state have shot up from 160,000 in 2006-07 to 490,000 now. Dropouts among girls declined to 1 million from about 2.5 million in 2006.

The plan has released a pent-up hunger for learning. It's brought in a "sense of urgency in (the) girls and they want to excel. By providing them bicycles, the government has helped us groom their talents," says Manisha Ranjan, a biology teacher in High School Desari in Bihar's Vaishali district, 55 km from Hajipur, the district headquarters.

Sometimes the most obvious solutions are also the right ones, acting as instruments of change. For one, the cycles have bridged distances to schools, and secondly, have given girls in a largely patriarchal society a sense of independence and of purpose.

Priyanka Kumari of Khoksa Kalyani village, formerly an occasional school-goer, now pedals 8km daily to school. "Now, I've become regular and punctual," she says. She wants to become a doctor.

"These girls now talk about careers," says Ram Balak Rai, principal of High School Desari, 55km from Hajipur, the district's headquarters. "They have become much more confident," he adds.

Of the 974,000 students who appeared for the state board's class 10 exams, 400,000 were girls. Of these, 75,136 got a first class, more than double last year's 37,708. Each of these girls is entitled to an incentive of R10,000.

Among those in the first division is Khusbhoo Kumari, a beneficiary of the cycle scheme from Bagaun village in Katihar district, about 340km southeast of state capital Patna. She came second in her class 10 exams. The Indira Gandhi National Open University (Ignou), a distance education institute, is planning a documentary on how she overcame her struggles to achieve the distinction.

"The scheme is very close to my heart," says chief minister Kumar. "I have no hesitation to say that this scheme has played a significant role in bringing about a positive change."

"Nothing gives me a greater sense of fulfillment of a work well done than seeing a procession of school-bound, bicycle-riding girls," he said. "It's a statement for social forward movement, of social equality and of social empowerment."

The cycle scheme isn't the only program helping to keep girls in schools. Under the 'Mukhyamantri Balika Poshak Yojana', all girls studying in classes 6 to 8 are given R700 each for school uniforms and study material. Over 3.6 million students have benefited from the scheme since it began in 2006. In 2009, the scheme was extended to girl students of class 3, 4 and 5.

The success of the programs has ensured Kumar the support of those who have benefited from them. "No previous government ever thought about the girls and women in this way," says Neha, a class 10 student of High School Desari. "We will prevail upon our villagers to prefer such leaders."

"This is, in fact, an affirmation of the fact that a small initiative can really go a long way in bringing about a big change. In Bihar, bicycles have now become an instrument for social change that can be felt in any part of the state. It has brought about a real transformation in the field of girls' education in Bihar," the CM wrote on his blog.

Name: _____

Grade VI ____

Date: _____

Title of the movie: _____

Duration: _____

What struck you in this movie?

Do you think the city is helpful for bikers? Comment.

How is Gurgaon different from the city you watched in the movie with respect to bike culture?

Name: _____ Project – Bicycle Grade 6 _____

Date: _____



Out bound Experience – Visit to Firefox Bicycle outlet

Observe the bicycles carefully and fill the table given below:

S.No .	Type of Bicycle	How is this bicycle different from the basic model? (Specify the change or additional feature.)	Why do you think this feature is added or changed in this bike?
1.		Feature 1	
		Feature 2	
		Feature 3	
2.		Feature 1	
		Feature 2	
		Feature 3	
3.		Feature 1	

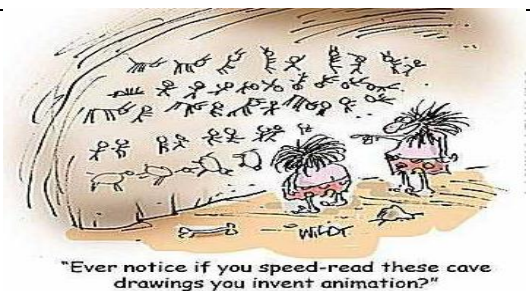


		Feature 2		
		Feature 3		
4.		Feature 1		
		Feature 2		
		Feature 3		
5.		Feature 1		
		Feature 2		
		Feature 3		

Innovation - is something wherein a product or a service is improved based on what the customer or consumer wants.

Name: _____ Project - Bicycle / Grade 6 _____ Date: _____

Give
"IT'S A NEW DESIGN TO SAVE WATER."

[illegible]

Satellite : Invention- Sputnik1 made by Russia;

Innovation -The Echo, Telstar, Relay, and Syncom satellites were built by NASA

Computer game: Invention: in 1952, A.S. Douglas wrote his PhD degree at the University of Cambridge on Human-Computer interaction. Douglas created the first graphical computer game - a version of Tic-Tac-Toe.

Innovations:

1. [The Telephone](#)



The telephone is an instrument that converts voice and sound signals into electrical impulses for transmission by wire to a different location, where another telephone receives the electrical impulses and turns them back into recognizable sounds. In 1875, Alexander Graham Bell built the first telephone that transmitted electrically the human voice.

2. [The Automobile](#)

Invention: In 1769, the very first self-propelled road vehicle was invented by French mechanic, Nicolas Joseph Cugnot.

Innovation: However, it was a steam-powered model. In 1885, Karl Benz designed and built the world's first practical automobile to be powered by an internal-combustion engine. In 1885, Gottlieb Daimler took the internal combustion engine a step further and patented what is generally recognized as the prototype of the modern gas engine and later built the world's first four-wheeled motor vehicle.

3. [The Camera](#)

In 1814, Joseph Nicéphore Niépce created the first photographic image with a camera obscura, however, the image required eight hours of light exposure and later faded. Louis-Jacques-Mandé Daguerre is considered the inventor of the first practical process of photography in 1837.

4. [The Steam Engine](#)

Invention: Thomas Savery was an English military engineer and inventor who in 1698, patented the first crude steam engine.

Innovation: Thomas Newcomen invented the atmospheric steam engine in 1712. James Watt improved Newcomen's design and invented what is considered the first modern steam engine in 1765.

After ten months' labor, George Stephenson's locomotive "Blucher" was completed and tested on the Cillingwood Railway on July 25, 1814. The track was an uphill trek of four hundred and fifty feet. George Stephenson's engine hauled eight loaded coal wagons weighing thirty tons, at about four miles an hour. This was the first steam engine powered locomotive to run on a railroad and it was the most successful working steam engine that had ever been constructed up to this period, this encouraged the inventor make further experiments. In all, Stephenson built sixteen different engines.

5. [The Sewing Machine](#)

Invention: The first functional sewing machine was invented by the French tailor, Barthelemy Thimonnier, in 1830.

Innovations: In 1834, Walter Hunt built America's first (somewhat) successful sewing machine. Elias Howe patented the first lockstitch sewing machine in 1846. Isaac Singer invented the up-and-down motion mechanism. In 1857, James Gibbs patented the first chain-stitch single-thread sewing machine. Helen Augusta Blanchard patented the first zig-zag stitch machine in 1873.

The Heritage School, Gurgaon
Grade 6___ / Project Bicycle
Questionnaire

Name of Interviewer _____

Date _____

Personal Details

Name: _____ Age: _____ Job Profile: _____

Approx distance of travel to workplace _____

Mode of transport to your workplace _____

How do you classify yourself, in terms of your interest in bicycling?

____ (A) Bicycle rider

____ (B) not a bicycle rider

For a Bicycle rider

1. From the following list, please **RANK ALL the places** you ride a bicycle in Gurgaon. [Use the number “1” for the place you ride the most, etc.]

1. ____ By lanes within the colony

2. ____ Main roads

3. ____ Neighbourhood streets

4. ____ Other: _____

2. From the following list, please **RANK ALL the reasons** you ride a bike in Gurgaon. [Use the number “1” for the reason you ride the most, etc.]

1. ____ Ride to work

2. ____ Recreation / pleasure

3. ____ Health

4. ____ Ride to school

5. ____ Run errands

6. ____ Other: _____

For a person who does not go to workplace/school on a bicycle

1. From the following list, please rank in order of preference, all the reasons for not using a bicycle to your workplace / school, in Gurgaon.

1. ____ Conditions of roads

2. ____ Extreme climate
3. ____ Traffic congestion
4. ____ Road sense of citizens
5. ____ Bike facilities at the metro station
6. ____ Lack of facilities like bike lanes
7. ____ Mindset of people towards bicycle users
8. ____ Lack of laws favouring bicycle travel
9. ____ Very dusty
10. ____ Other: _____

2. If the following conditions or facilities were improved, would you be likely to ride a bicycle more often in Gurgaon? (rank in order of preference)

1. ____ Bicycle lanes
2. ____ More marked bicycle routes (with signs)
3. ____ More bicycle parking at destinations
4. ____ Better pavement for pedestrians
5. ____ More facilities to hire bikes at Metro stations
6. ____ Traffic rules favouring bicycle travelers
7. ____ Improved traffic conditions
8. ____ People stop associating bike travel with a particular status
9. ____ More awareness to follow rules of the road
10. ____ Better conditions of the roads
11. ____ Training at school
12. ____ Growing grass on the road side to contain dust
13. ____ Any other: _____

For a person who rides to his / her workplace / school on a bicycle.....

What are the difficulties you face? (List the reasons in the order of preference)

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

For a parent

1. Does your child go to school on a bicycle? _____
2. Do you send him / her on a bicycle to the market to buy Vegetables or groceries?

If the answer to Question 1 or 2 is 'no' then answer the question below:

List the reasons why you do not allow your child to go to school on a bicycle / run errands. (in the order of preference)

- | | |
|----------|----------|
| 1. _____ | 4. _____ |
| 2. _____ | 5. _____ |
| 3. _____ | 6. _____ |

Q1.What is your name?

Q2.What is your age?

Q3.What is your occupation?

Q4.What is the distance between your house and your workplace?

Q5.What is the mode of transport which you take to your workplace?

Q6.Do you think Gurgaon roads are safe to ride a bicycle?

Q7. Are you health conscious?

Q8.Would you like to send your child to school on a bicycle? If yes why if no why?

Q9.Have you thought of using bicycle as a daily mode of transport? If yes why if no why?

Q10.Do you ride a bicycle? If yes why? If no why?

Q11.Do you think the conditions of Gurgaon roads Favour bikers? If no why?

Q12.Have you ever thought of riding a bicycle to your workplace ? If yes why ?If no why?

Q13.How do you feel about making Gurgaon a bike friendly city?

Q14.How can you make bikes a more used mode of transport?

Annexure - 13 (a)

Closing Ceremony - Project Bicycle		
Activity	Student	From
Welcome	Kartikey & Gurbani	VI E
History Of Bicycles	Tanya, Nipun, Harshita & Nirbhay	VII D
Felicitation of Sahil Sir	Ishan	VI F
Context For Manual Release	Rajashree	VI E
Release Of Manual	Mrs Kaul	Guldasta
Context For Bicycle Donation	Priya & Rhea Jain	VI E
Bicycle Donation	All Students	VI D, E, F
Vote Of Thanks For Parents	Saijal	VI F
Bicycle Events	All	VI D, E, F
Vote of Thanks For Guests & Grade VII	All Students	VI F

Closing ceremony – Project bicycle



Welcome

History of Project Bicycles

Felicitation of Sahil Sir

Context for Manual Release

Release of Manual

Context for Bicycle Donation

Bicycle Donation

Vote of Thanks for Parents

Bicycle Events

Vote of Thanks

