Our Health Is In Our Hands! (Class 6)

Introduction:	Learners will design experiments and tests to find out the fitness level of their friends. They will use ideas of data management like tally marks and pictures to record and share their findings.
Leading Question	How can we help each other to improve our fitness level?
Lesson (Number and Name)	Lesson 4: Data Handling and Presentation
Expected Time	5 days in class, 40 minutes each day 4 days at home, 10-20 minutes each day
Needed Resources	Paper, pen/pencil, open space
Learning Outcomes	Learners understand collection of data and arrange given data in tables, pictographs, bar graphs and infographics and understand their meaning.
Suggestions for Teachers (To achieve the curriculum goals and related skills given under National Level Learning Standards)	1. All teachers should see the material and plan for each day before the class starts. 2. Explain the learners one day before about the material that is not available in school so that they can bring it the next day. 3. Before starting the first day, divide all learners into groups so that they do group work, experiments or any other activity in the group. Make sure that the groups are always mixed and inclusive (with learners of all genders and all levels). 4. Teachers are suggested to scan the QR code given in the lesson plan and see the video or article before running the class. 5. Create a creative and cooperative environment for learning in the class. 6. After the project is finished, make groups discuss the questions given in the textbook and ask learners to write their answers individually.

Day 1

Learners will find out the steps included in data collection and will start designing tests to check the fitness level of their friends.

Time	Activity and Description
5 minutes	**<u>Request to Teacher:</u>** Please take care to include those learners who are disabled or suffering from other medical conditions by making other alternative arrangements for them. All learners' safety should be kept in mind while conducting these activities. Project Introduction Teacher says: Let us start this project with a small activity! Ask the learners to jog in their place as fast as possible for 1 minute. (For those for whom this is not possible, the teacher can give balloons which they will try to blow fast or blow into a plastic bag to see if their breath gets fast or not) - Give time to learners to do the activity. - After one minute has passed, they can be asked to share with one partner: - Are their breaths fast? - Is their heart beating fast? - Do they feel tired or energetic? After listening to some answers, the teacher says: - If you feel tired or out of breath, then your health should be more fit, i.e. healthy!

	- In this project, we will test each other's physical fitness level! (Fitness means staying healthy and feeling healthy)
	- We will work in groups to answer the main question: How can we help each other to improve our fitness level?
	- Answer these questions:
	  - We will design special tests for our friends so that they can take part in the tests and conduct them.
	  - We will also give suggestions to help our friends improve their fitness level based on the results of our tests!

15 minutes	**<u>Group Work: Steps of Data Collection</u>**
	Note: In this project, make groups in multiples of 3 to conduct activities effectively in the next few days. See the instructions given below for more clarity. Divide the class into 9 or 12 groups based on the number of learners in the class. Each group should have 4 or fewer members.
	For example:
	- If there are 35 learners in the class, divide them into 9 groups like this:
	  - 8 groups with 4 members each; and
	  - 1 group with 3 members
	- If there are 45 learners in the class, divide them into 12 groups like this:
	  - 9 groups with 4 members each; and
	  - 3 groups with 3 members each
	
	Inform the learners that they will work in the same group for the entire project.
	- How will you test your friends' fitness level? What information will you collect and why? (Listen to learners' answers)
	- To test our friends' fitness level, we will use a skill called data collection.
	- Data is facts that we can collect, like numbers, words or pictures. It helps us understand things and make decisions.
	- Any data collection process has the following steps:
	  1. Decide what the goal is, what do we want to know?
	  2. Decide what data needs to be collected,what facts will lead us to the information Do we want to??
	  3. Decide how the data will be collected and arranged?
	  4. Collect the data.
	  5. Analyse and interpret the data.
	  6. Act on the results
	
	Write the steps of the data collection process on a sheet of paper and stick it on the wall if possible.
	- learners copy these steps in their notebooks.
	- Inform them that today they will complete steps 1 and 2.
	
	The teachers says:
	- Let us think about step 1.
	- What is the goal? (Answer: To check our friends' fitness level and share suggestions to help them become more fit)
	- But why do we want to check our fitness level? Discuss in your groups:
	  - Why is it important for us to stay fit?
	  - How can we tell that a person is healthy and fit?

- How can we tell that a person is not healthy?

Give time to learners for discussion. While learners discuss, make a table on the board for the next part.

- Once learners have discussed, listen to answers from 1-2 learners from each group for the whole class to hear.

20 minutes

<u>Group Work: Designing Fitness Test:</u>

Teacher says:

- Now, let us move to step 2.
- To decide what data to collect, we can think about body parts or abilities that we want to test.
- For example, you may want to test your eyes or lungs. To test lung capacity, you can ask learners to blow balloons or plastic bags in one or two minutes and record the number of balloons and bags blown by them.
- Similarly, some abilities that you can test are endurance and speed. For example, you can ask learners to catch a ball thrown ten times and record how many times each learner caught the ball to collect data. Besides this, you can also ask learners how many glasses of water they drink and use it for data.
    - Let us see one example each of every body part and ability and how we can test its fitness.

Explain the examples given below using the table made on the board.

Body Part / Ability	Desired Result	Ways to do the test
Eyes (Body part)	● Can read clearly ● Can see things clearly from far ● Eyes look healthy (not watery/red/yellow)	● Read words written on the board from the last bench ● Check eyes for signs of poor health like redness/ yellowness/watering etc.
Endurance,(Ability)	● Can do physical activities without getting too tired	● Check heart rate or pulse before and after running or climbing stairs
Water drinking capacity	● How many glasses of water can they drink in one day	● Keep record of how many glasses of water drunk in the whole day

The teacher explains:

- Now, in your groups, you will choose one body part or ability that you want to test and design a test for it.
- While doing this, you must make sure that the test:
    - Targets the chosen body part or ability
    - Includes everything we need to know about the body part or ability
    - Is easy to conduct in school
- During the project, you will collect data based on these tests, draw conclusions from it and share recommendations for improvement in fitness.
- During the presentation, you will have to share:
    - 2 conclusions based on collected data; and
    - 1 suggestion for improvement in fitness

	Ask the learners to work in their groups: - Discuss in their groups about the body part or ability they want to test. - Make a table using the same format as above and fill it in three columns. - Check and make sure that the test is easy to do and measure.
Homework:	Talk to school staff and find more or better ways to test the chosen body parts and abilities.

Day 2

Learners will finalise their fitness tests based on feedback and will find out tally marks as a way to record and organise data.

Material	**NA**
Time	**Activity and Description**
10 minutes	**<u>Review:</u>** Ask learners to share what they learnt in the last class and remind them of the main question for the project: How can we help each other to improve our fitness level? The teachers make sure that learners repeat the steps of data collection using the paper stuck on the board, and ask learners to share which steps have been covered so far: 1. Decide what the goal is 2. Decide what data needs to be collected 3. Decide how the data will be collected and arranged 4. Collect the data 5. Analyse and interpret the data 6. Act on the results The teachers says: - Today, we will complete step 3! **Number of push ups that students in the class can do:** Aditi - 5, Dhruv - 10, Aarav - 4, Laxmi - 10, Sana - 5, Aditya - 8, Maryam - 8, Daksh - 6, Jaya - 5, Sruthi - 5 Sai - 6, Kabir - 9, Krishna - 10, Ishaan - 9, Rudra - 5, Veer - 6, Alpana - 10, Bina - 8, Riya - 6, Anupam - 4
15 minutes	**<u>Teacher Note:</u>** For this section, each group has to be paired with another group. If any group cannot make a pair then join 3 groups together. Explain the learners : In the next 8 to 10 minutes give feedback to other groups on the fitness test made yesterday on the points given below : 1. Does this test target the chosen body part or ability? 2. Does it include all the information needed to know about the body part or ability? 3. Is it easy to conduct the test in school based on it? In the last 5 minutes learners will work on the feedback given in their groups.

15 minutes	**<u>Organising Data using Tally Marks:</u>** Explain the learners : - We will run fitness tests on learners of two other groups in our class. - We will need to find a way to organise the results of our tests so that we can understand them easily and use them well. - Open pages 75 - 76 of the textbook. Open and read section 4.1 : - Collection and Organisation of Data which shows children's choice of games and discuss the following: - Is it easy for the teacher to count which game is most popular among learners by using a table? - How will you present this data to make the teacher's work easy? After taking some answers, explain to the learners that: - This information needs to be organised so that we can read it easily. - One way of organising data is to use tally marks. Explain how tally marks can be used by using the table given on page 76 of the textbook. Once this is done, make the table shown below (on the left side) on the board/chart paper. - Ask learners to work in pairs and organise the data showing the number of exercises that can be done by learners in the class using tally marks. - Check the answers using the table given below (on the right side).
Homework	Ask them to see the examples on pages 76 - 77 of the textbook and solve it themselves.

No. of Push Ups	Tally Marks	No. of Students
4 push-ups	||	2
5 push-ups	~~||||~~	5
6 push-ups	||||	4
8 push-ups	|||	3
9 push-ups	||	2
10 push-ups	||||	4

Day 3

Learners will use pictographs as a way to record and organise data. They will organise their data using bar diagrams or bar graphs.

Material	**NA**
Time	**Activity and Description**
5 minutes	**<u>Review:</u>** Ask learners to share what they learnt in the last class and ask about homework. Teacher repeat the steps of data collection, and share with learners which steps have been covered so far: 1. Decide what the goal is 2. Decide what data needs to be collected 3. Decide how the data will be collected and arranged 4. Collect the data 5. Analyse and interpret the data 6. Act on the results

Teacher says: Today, we will complete step 3!

20 minutes

Organising Data using Pictographs:

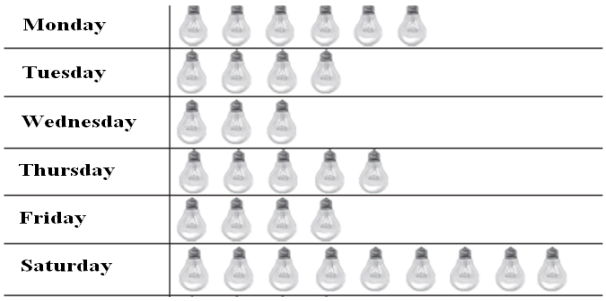
The teachers says:

- Another way of organising data is to use pictographs.
- In pictographs, pictures are used to show data.
- Open page 79 of the textbook and observe the pictograph in the example.
- Discuss the following with a partner:
  - What information does the pictograph show?
  - Is it easy to read information from the pictograph?

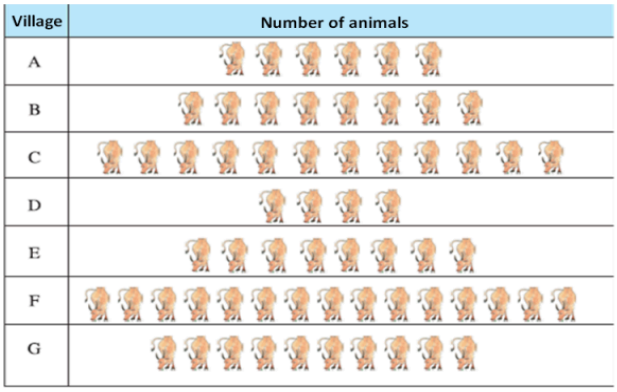
After listening to the answers, explain to the learners that they can read the pictograph just by counting the number of pictures.

Use the board to explain the following:

In the pictograph in the example, 1 bulb = 1 bulb



However, one picture can show more than 1 thing. For example, in the pictograph, 1 elephant = 10 animals.

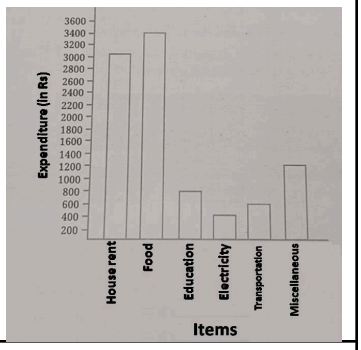


Once this is done, make the table given below on the board.

- Ask the learners to work in pairs and organise the data showing the number of exercises that can be done by learners in the class using pictographs.
- Check the answers using the sample answer shown below (on the right side).

Number of push ups that students in the class can do:	
Aditi - 5	Sai - 6
Dhruv - 10	Kabir - 9
Aarav - 4	Krishna - 10
Laxmi - 10	Ishaan - 9
Sana - 5	Rudra - 5
Aditya - 8	Veer - 6
Maryam - 8	Alpana - 10
Daksh - 6	Bina - 8
Jaya - 5	Riya - 6
Sruthi - 5	Anupam - 4

No. of Pushups	Number of Students
4 push-ups	▲ ▲
5 push-ups	▲ ▲ ▲ ▲ ▲
6 push-ups	▲ ▲ ▲ ▲
8 push-ups	▲ ▲ ▲
9 push-ups	▲ ▲
10 push-ups	▲ ▲ ▲ ▲

15 minutes	**<u>Information about Bar Graph:</u>** (Teacher can use this link and QR code to see details about bar graph) - What do you know about bar diagrams and bar graphs? (Draw horizontal or vertical bars of equal width in such a way that equal distance remains between them. Making the length of each drawn bar according to the given number makes it able to show the data clearly. This representation of data is called bar diagram or bar graph. Show the examples given on the textbook pages 85 - 86. Choosing the Scale: If the numbers in the data are big, then a different scale will be needed. Learners will see the examples given on pages 91 - 92 themselves and discuss them in groups. - If there is any big number in your data also which you cannot show in bar graph, then how will you choose the scale? (Example 1 unit length = ₹ 200) Learners will try to show their data on bar graphs in groups. If needed, the teacher should explain again to the learners. 
Homework:	Solve the questions on textbook pages 93 - 94 yourself.

Day 4

Learners will make a data recording sheet for the tests conducted by them. They will do one test with their friends, record the test results, and organise the collected data.

Material	
Time	**Activity and Description**
10 minutes	**<u>Explain the learners:</u>** Today, we will follow step 4! Preparing Data Recording Sheet The teacher says: - In your groups, look at your tests and decide which method you want to use to organise the data. Give learners some minutes for discussion and inform them that they can also choose to use one method for each test. - You will make one data recording sheet for yourself. - The title of the recording sheet should mention the ability or body part tested (like vision, endurance etc.). - Write the test description that shows what people will do in the test. - Keep some space to record information collected from 8-10 learners. - Include space to organise the data (tally marks or pictograph in table form) - Keep some space for conclusions - What conclusions can you draw about your friends' health based on the results?

- What suggestions will you give to improve their fitness?

Test for Vision/Eyes

Test Description: Each person must read 8 different words of decreasing size from the back of the class.

Raw Data:

Number of words read easily and correctly by each person:

1. *<person name>: no. of words read correctly*
2.
3.
4.
5.
6.
7.
8.

Tally Marks Table:

No. of words read correctly	Tally Marks	No. of Students

Conclusion:

Learners divide the work of making a recording sheet for each test among different group members.

20 minutes

Conducting the Test:

While conducting the test learners should :

- Tag 3 groups with each other. For example:
  - Group 1, 2 and 3 can be tagged with each other.
  - Group 4, 5 and 6 can be tagged with each other.
  - Group 7, 8 and 9 can be tagged with each other.
- Groups will take turns to conduct tests on the two other groups they are tagged with. For example:
  - First, Group 1 will conduct its test on Group 2 and 3.
  - After that, Group 2 will conduct its test on Group 1 and 3.
  - Finally, Group 3 will conduct its test on Group 1 and 2.

Ask learners to assign roles in their groups to make the work easy and fast. Two team members conduct the test while the other two record on the sheet. If needed, give them suggestions like this:

- Two members of Group 1 can test different members of Group 2 and 3 at the same time.
- The other two members can record the data during the test.

Learners work in their groups, conduct fitness tests and record their findings.

10 minutes

Organising the Data:

learners start organising their findings using tally marks, pictographs or bar diagrams or bar graphs while working in their groups.

Day 5

Learners draw conclusions and explain based on their test data, and present their findings in front of the two groups on which tests were done.

<table>
<tr><td>Material</td><td></td></tr>
<tr><td>Time</td><td>Activity and Description</td></tr>
<tr><td>5 minutes</td><td>
<u>Review:</u>
Ask learners to share what they learnt in the last class and ask about homework. And remind them of the main question of the project: How can we help each other to improve our fitness level?
The teacher should repeat the steps of data collection, and share with learners which steps have been covered so far:
1. Decide what the goal is
2. Decide what data needs to be collected
3. Decide how the data will be collected and arranged
4. Collect the data
5. Analyse and interpret the data
6. Act on the results

Test for Vision/ Eyes
Test Description: Each person must read 8 different words of decreasing size from the back of the class.
Raw Data:
Number of words read easily and correctly by each person:
1. Person A - 5
2. Person B - 5
3. Person C - 5
4. Person D - 8
5. Person E - 5
6. Person F - 8
7. Person G - 8
8. Person H 5
Tally Marks Table:
<table>
<tr><td>No. of Words Read Correctly</td><td>Tally marks</td><td>No. of Students</td></tr>
<tr><td>5</td><td>卌</td><td>5</td></tr>
<tr><td>8</td><td>卌|||</td><td>3</td></tr>
</table>

The teacher should say:
- Today, we will complete step 5 and 6!
- First, we will analyse and interpret our data. Then we will give suggestions based on the results about how our classmates can improve or maintain their fitness level.
- Once this is done, we will write a short report and share it with our friends. Include these things in the report :
  - What was the goal?
  - What was the test?
  - What conclusions did you draw?
  - What suggestions or recommendations do you make based on the conclusions?

The teacher write the things to include on the board, so that groups can refer to them while working on their report.
</td></tr>
<tr><td>15 minutes</td><td>
<u>Interpretation of the Data:</u>
Share the following example with learners that shows sample data set for eye test and related conclusions:

Conclusions:
- Most learners (5 out of 8) were able to read big words but could not read small words.
</td></tr>
</table>

- Only 3 learners were able to read all words.
- Therefore, our friends need to improve their vision.

Suggestions :

- We can ask the school nurse to help in getting eyes checked in school, so that vision can be checked and needy people can get spectacles.
- We need to take more Vitamin A in our diet and do vision exercises.

Learners work in their groups, interpret the data and write suggestions based on their conclusions.

Test for Vision/Eyes

Test Description: Each person must read 8 different words of decreasing size from the back of the class.

Raw Data:

Number of words read easily and correctly by each person:

1. *<person name>: no. of words read correctly*
2.
3.
4.
5.
6.
7.
8.

Tally Marks Table:

No. of words read correctly	Tally Marks	No. of Students

Conclusion:

20 minutes

<u>Presentation of Conclusions:</u>

Groups present their conclusions in the class. They must include the following points in their presentations:

1. Which body part or ability was tested?
2. Which test was used to test this body part and ability?
3. How was this test done?
4. What were their main conclusions (at least 2)?
5. What are your suggestions based on the conclusions (at least 1)?

Final Discussion :

The learners will discuss in groups:

- Based on all the presentations they saw, how fit or unfit are the learners in their class?
- What changes would they like to make in their lifestyle so that they stay more fit?
- Which step in the data collection process did they like? Why?
- Which step did they find challenging? Why?

ASSESSMENT CRITERIA

A majority of my learners were able to:

- ☐ Design a fitness test that targets a chosen body part or ability and includes all information needed to conduct it.
- ☐ Record data collected from at least 6 to 8 classmates using tally marks.
- ☐ Represent the same data using a pictograph or bar graph with correct labels, scale, and title.
- ☐ State at least 2 conclusions directly based on their data.
- ☐ Give at least 1 realistic suggestion to improve or maintain fitness based on their conclusions.

PUBLIC PRODUCT CRITERIA

Product	A Fitness Report: Each group presents their data recording sheet with at least one data display (tally marks, pictograph, or bar graph), two written conclusions, and one suggestion for improving fitness.
Audience	The two groups on whom the fitness tests were conducted (peers within the classroom).

Must include	1. Name of the body part or ability tested 2. Description of the test conducted 3. Data displayed using tally marks, pictograph, or bar graph 4. At least 2 conclusions drawn from the data 5. At least 1 suggestion for improving fitness
Measurable criteria	The data display must be accurately labelled and correctly represent the collected data. Conclusions must be directly based on the data, not guesses. The suggestion must be realistic and connected to the test findings.
Format	Handwritten on paper or in the notebook. Presented verbally to the audience group.

ADDITIONAL ENRICHMENT ACTIVITIES

Activity 1	Learners who finish early can create a second bar graph comparing results across two different groups and write a short paragraph explaining what the comparison shows. This deepens their understanding of scale and data interpretation.
Activity 2	Learners can design one more fitness test for a body part or ability not yet tested by any group in the class. They write out the test design on paper using the same three-column format from Day 1, and share it with the teacher.
Activity 3	Learners can create a class-wide "Fitness Wall" by combining all groups' top conclusions on a single chart paper. Each group contributes one key finding and one suggestion. This is displayed in the classroom.

MODIFICATIONS FOR SIMPLIFICATION

If time is limited	Reduce the project to 4 days. Combine Days 3 and 4 by having learners choose only one form of data display (tally marks only or pictograph only, not both) and skip the bar graph. Core learning outcomes around data collection, organisation, and interpretation are retained.
If learner levels are mixed	Provide sentence starters for writing conclusions: "Most learners were able to..." and "We suggest that..." Pair a stronger learner with a learner who needs support in each group. The recorder role can be shared so that all learners practice writing.
If fitness tests are not feasible	If physical activities cannot be conducted (due to space or health reasons), replace the physical test with a simple survey test. Learners design a 5-question survey on eating and sleeping habits and collect data from classmates. All other steps remain the same.

Chapter-Project Mapping

Corresponding Chapter: Lesson 4 - Data Handling and Presentation (Class 6 Mathematics)

Chapter Topic	Chapter Sub-Topic	Coverage by Project
4.1 Collection and Organisation of Data	Steps of data collection; organising data in tables	Yes
4.2 Tally Marks	Using tally marks to record and count data	Yes
4.3 Pictograph	Drawing and reading pictographs	Yes

4.4 Bar Graph / Bar Diagram	Drawing bar graphs with scale; interpreting bar graphs	Yes
4.5 Infographics (if applicable)	Reading and interpreting infographics	Not covered - teacher to address after project