Fitness Challenge (Level 3)

Description	Learners will design experiments and tests to determine the fitness levels of their friends/ classmates. They will use the concepts of data handling such as tally marks and pictographs to record and share their findings.
Leading question	How can I help my friends check and maintain their fitness levels?
Subjects covered	Math, Science
Total time required	40-60 min a day for 4 days
Resources required	Paper, pen/pencil, open space
Learning outcomes:	By the end of this project, learners will be able to: Knowledge-Based Outcomes: 1. List the steps used in the process of data collection. 2. Interpret data represented as tally marks. 3. Organise data using tally marks. 4. Interpret data represented as a pictograph. 5. Organise data into pictographs. 21st Century Skill Outcomes: 1. Think critically to determine which tests to conduct to assess fitness and how to conclude the data. 2. Be creative in determining recommendations based on the findings. 3. Communicate effectively while presenting findings to classmates/ friends.
Previous Learning	Basic operations (add, subtract, multiply, divide)
Supervision required	Medium

Day 1 -

Today, you will explore the steps involved in data collection and design tests to check the fitness level of your classmates/ friends.

Time	Activity and Description
5 minutes	**Introduction** Jog in the same spot for a minute as fast as you can! How do you feel? - Is your heart racing? - Can you speak without panting? In this project, we are going to test our physical fitness levels! The **leading question** of the project is: How can I help my classmates/ friends check and maintain their fitness levels?

<table>
<tr><td></td><td>To answer this question, we will design special tests, take surveys and present our findings! We will also come up with tips to help our classmates/ friends improve and maintain their fitness levels based on the results of our tests!</td></tr>
<tr><td>10 minutes</td><td>Steps of Data Collection
To test our classmates' fitness levels, we will be using a skill called data collection.
- Data is facts we can collect, like numbers, words, or pictures. It helps us understand things or make decisions.
- Any data collection process has the following steps:
1. Decide what the goal is.
2. Decide what data needs to be collected.
3. Decide how the data will be collected and organised.
4. Collect the data.
5. Analyse and interpret the findings.
6. Act on the results.

Note: Learners can write these steps in their notebooks.

Today, we will do steps 1 and 2. Let us first understand our goal - why do we want to check fitness levels?
- Why is it important for us to stay fit?
- How can we tell if a person is healthy and fit?
- What are some things that would show us that a person is not healthy?
- How will checking fitness levels help our classmates?</td></tr>
<tr><td>25 minutes</td><td>Designing Fitness Tests
- Let us think about the body parts or abilities we want to test.
- We can choose different body parts such as eyes and lungs and abilities such as stamina and speed.

Note: Give learners some examples, such as the ones shown below.

<table>
<tr><th>Body part/Ability:</th><th>Signs it is working well:</th><th>Ways to Test:</th></tr>
<tr><td>Eyes</td><td>- Able to read clearly
- Able to see things at a distance
- Eyes are not watery/red</td><td>- Read words written on the board from the last bench
- Check eyes for signs of problems such as redness, yellowness, overly watery etc.</td></tr>
<tr><td>Stamina</td><td>Able to do physical activities without getting very tired</td><td>Checking heart rate/pulse after running/climbing stairs</td></tr>
</table>
</td></tr>
</table>

	Tip: *If learners find it challenging to develop tests, share the following table and ask them to pick any test they would like to conduct.*

Body part/Ability:	***Signs it is working well:***	***Ways to Test:***
Lungs	*Able to breathe in and out deeply*	*Blow out a candle or on a piece of paper by placing it at different distances (record the distance till which someone can blow)*
Upper body strength	*Has strong shoulders, arms and chest muscles*	*Do as many push-ups as possible in 45 seconds*
Leg strength	*Has strong leg and thigh muscles*	*Do as many squats as possible in 45 seconds*
Flexibility	*Able to stretch easily and move muscles freely*	*Bend forward and touch toes while standing*

At-home activities	Show your test to an adult or elder in the family and seek feedback on the following: - Are the signs and testing methods accurate? Do they cover everything we need to know about the body part or ability? - Can the tests be easily conducted? Make changes to your table based on the feedback received.

Day 2 –

Today, you will explore different ways of recording and organising data and create recording sheets for the test results.

Time	**Activity and Description**
5 minutes	**Recap** What are the different steps of data collection that we learned about in the previous class? 1. *Decide what the goal is* 2. *Decide what data needs to be collected* 3. *Decide how the data will be collected and organised* 4. *Collect the data* 5. *Analyse and interpret the findings* 6. *Act on the results* Today, we will do steps 3 and 4.
10 minutes	**Organising Data Using Tally Marks** ***Note:*** *If only one learner is participating in the project, ask them to bring a few friends to the class for this section.*

We will be running our fitness tests on classmates/ friends in such a way that each of us tests the fitness levels of at least 5 people. We need to come up with a way to organise the results of our tests so that we can make sense of them easily and use them well.

Note:

- *Explain to learners that we need to organise this information to help us easily read it.*
- *One way to organise data is by using tally marks.*
- *Ask learners to organise the following data into a table using tally marks.*

Fruit	Number of Students
Banana	𝍸 |||
Orange	|||
Apple	𝍸
Guava	||||

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

Tip: *In case learners need more support, you can help them with the following steps*

1. *Draw a table to show the two parts of the information, 1 for the number of push-ups and the other for the tally marks.*
2. *Identify the different readings and arrange them in ascending order in column 1.*
3. *Start drawing tally marks for each reading.*

To challenge learners, you can ask them to answer questions such as:
How many push-ups were most students able to do?
What was the difference between the number of students who could do 10 push-ups and the number who could do 9?

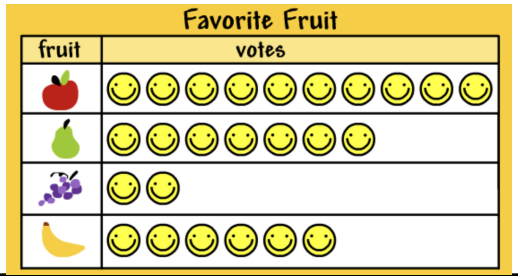
No. of Push Ups	Tally Marks	No. of Students
4 push-ups	||	2
5 push-ups	𝍸	5
6 push-ups	||||	4
8 push-ups	|||	3
9 push-ups	||	2
10 push-ups	||||	4

10 minutes

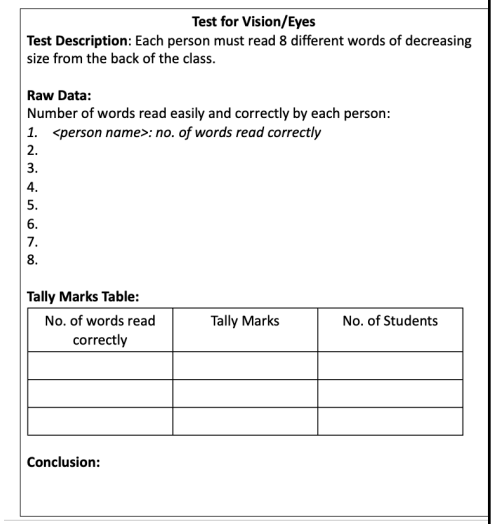
Organising Data Using Pictographs

Another way to organise data is by using a pictograph. A pictograph uses pictures to represent data.

Observe the pictograph and answer:



	- What information is the pictograph showing? - Is it easy to read information from a pictograph? ***Note**: Explain to learners that they can read a pictograph by simply counting the number of pictures. In this table, 1 head = 1 absent student. However, it is possible that one picture could represent more than 1 thing.* ***Tip:** If time permits, ask learners to represent the push-up data in the form of a pictograph.*
15 minutes	**How Will You Record and Organise Your Data?** Look back at the tests you listed on Day 1 and think if you want to represent the data as a pictograph or a tally marks table for each test. Create recording sheets for their data which include at least the following things: - Identify one ability to test (such as eyesight, stamina etc.) - Name of the test and the ability being tested. - Test description - what will people do in the test? - Space to record the information collected from test-takers - Presentation of the data (as tally marks or a pictograph table) - Space for conclusion - what can you conclude about the health of your classmates based on the results? What do you recommend they do to improve their fitness? ***Note:** Refer to the example in the image above for an example of a recording sheet (it is also in **Appendix 1**)*
At-home activities	Finish creating any data recording sheets that you may not have been able to in class.



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:

Day 3

Today, you will carry out one test, record the test results, and organise the data collected.

Time	Activity and Description

30 minutes	**Conducting Tests** Today, we will do step 4 of the data collection process. - Can anyone tell me what this step is? - Yes! We will perform the tests to collect data and then we will organise it! Carry out the first test on your friends/ classmates and record the data!
10 minutes	**Organising the Data** Start organising your findings using tally marks or pictographs! ***Tip:*** *Support learners by giving them tips on how they can organise the data if needed.*
At-home activities	If you choose to test more than one body part or ability, you can conduct the second test with the same group and organise the data collected.

Day 4 –

Today, you will conclude from your test data and think of recommendations or solutions on how your friends/ classmates can improve or maintain their fitness levels.

Time	Activity and Description

20 minutes	**Interpreting the Data**
	Today, we will do steps 5 and 6 for our tests!
	- Can anyone tell me what these steps are?
	- Yes! First, we will analyse and interpret our findings. Then we will act on the results by making suggestions on how our classmates can improve or maintain their fitness levels.
	- Once done, we will write a small report and share it with our audience. Include these elements in the report:
	  - What was the test?
	  - What were the findings?
	  - What did they conclude?
	  - What do they suggest or recommend based on their conclusions?
	
	Note: *Share the following example showing a sample data set, and corresponding conclusions, with learners for an eye test:*

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:

No. of Words Read Correctly	Tally marks	No. of Students
5	𝍸	5
8	𝍸𝍷	3

Conclusion:

- *Most students (5 out of 8) were able to read the big words but not the small words.*
- *Only 3 students were able to read all the words.*
- *Therefore, there is a need for our classmates to improve their eyesight.*

Recommendations:

- *We can ask the school nurse to help us organise an eye check-up in school to test vision and get glasses for those who need them.*
- *We need to eat more vitamin A in our diet and do vision exercises.*

Tip: *Learners can ask elders or school staff for recommendations based on their findings too.*

10 minutes	**Presenting Findings** Present your findings to your friends/ classmates! You must cover the following things: - What was the test? - What were their main findings and conclusions? - What are their recommendations based on their findings?
10 minutes	**Reflection** Now that we have completed the project, let us reflect on our experience of it. Think and share: - How fit or unfit are your friends/ classmates? - What would you like to change about their lifestyle to make sure they are more fit? - Which step or steps in the data collection process did you enjoy? Why? - Which step did you find challenging? Why?

Additional enrichment activities:	- Ask learners to conduct more than one test.

	- Learners can assign marks on the fitness tests (for example, those who can read small words in eye tests get 10 points). They can then calculate the average score for the class by dividing the sum of all scores by the number of test takers.
Modifications for simplification	- Have learners perform only 1 fitness test for one group or a smaller number of students. - Eliminate recommendations from the data recording sheet.

ASSESSMENT CRITERIA

A majority of my learners were able to:

☐ Record and interpret data using tally marks or pictographs
☐ Create a fitness test and conduct at least 1 test with their classmates
☐ Write conclusions and recommendations based on the fitness tests they conducted

APPENDIX 1

Sample Data Recording Sheet

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: