



Improving our Classroom Environment

Activity 1

Investigating Environmental Factors



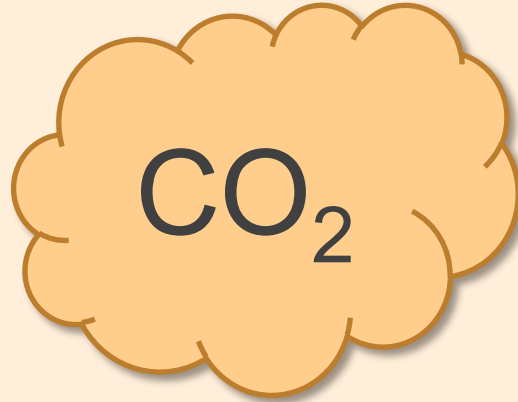
Learning intention

We are learning how environmental factors, such as CO₂ can affect children's learning.

Success criteria

- We can find evidence which shows how environmental factors affect learning
- We can share and present our findings
- We can work well ingroups

Carbon Dioxide



What evidence is there to show how carbon dioxide levels affect the ability to learn?

Share and present your research findings to the class.

Activity 2

Introduction to Sensors and Environmental Data



Learning intention

We are learning how sensors can record environmental data.

Success criteria

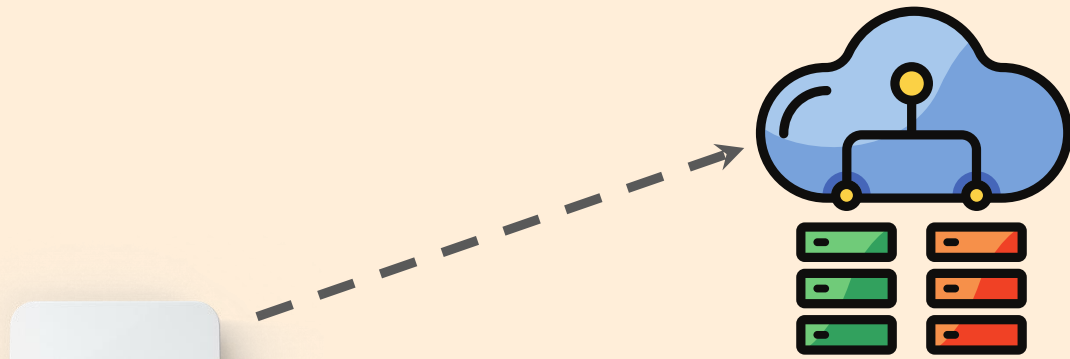
- I can describe types of environmental data recorded by a sensor.
- I can say why data about our environment is helpful.
- I can analyse environmental data about a classroom.

Sensors

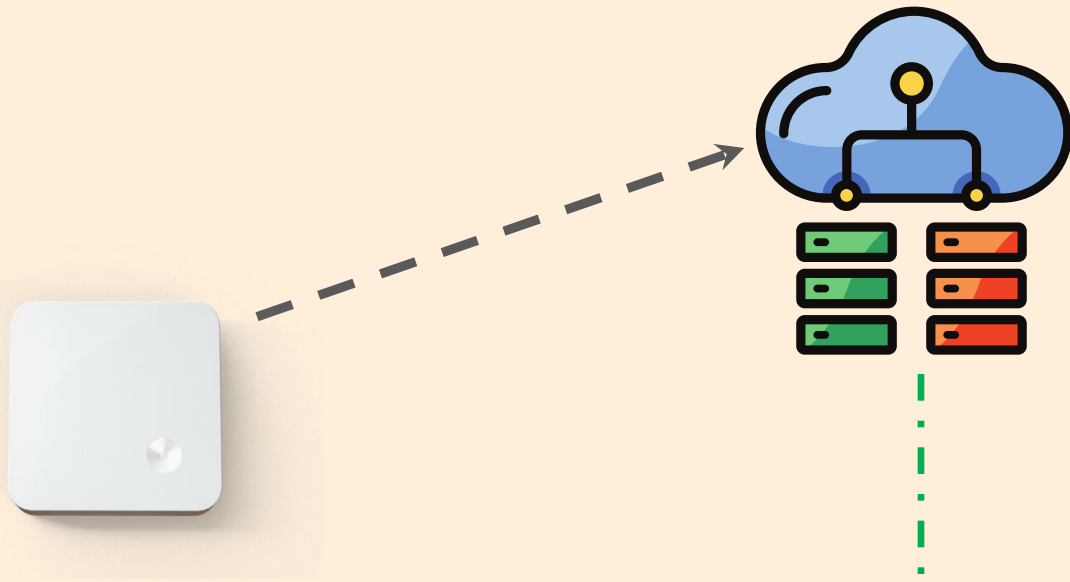


A sensor is a digital device that can track and record data about an environment. For example:

- Temperature of rooms
- Levels of carbon dioxide
- Lighting levels
- Humidity levels
- Air pressure



This data can be uploaded to cloud-based computers where it is stored.



CO₂ levels may be viewed
and analysed.

Suggest why the information recorded by building sensors is valuable and how it may be used.

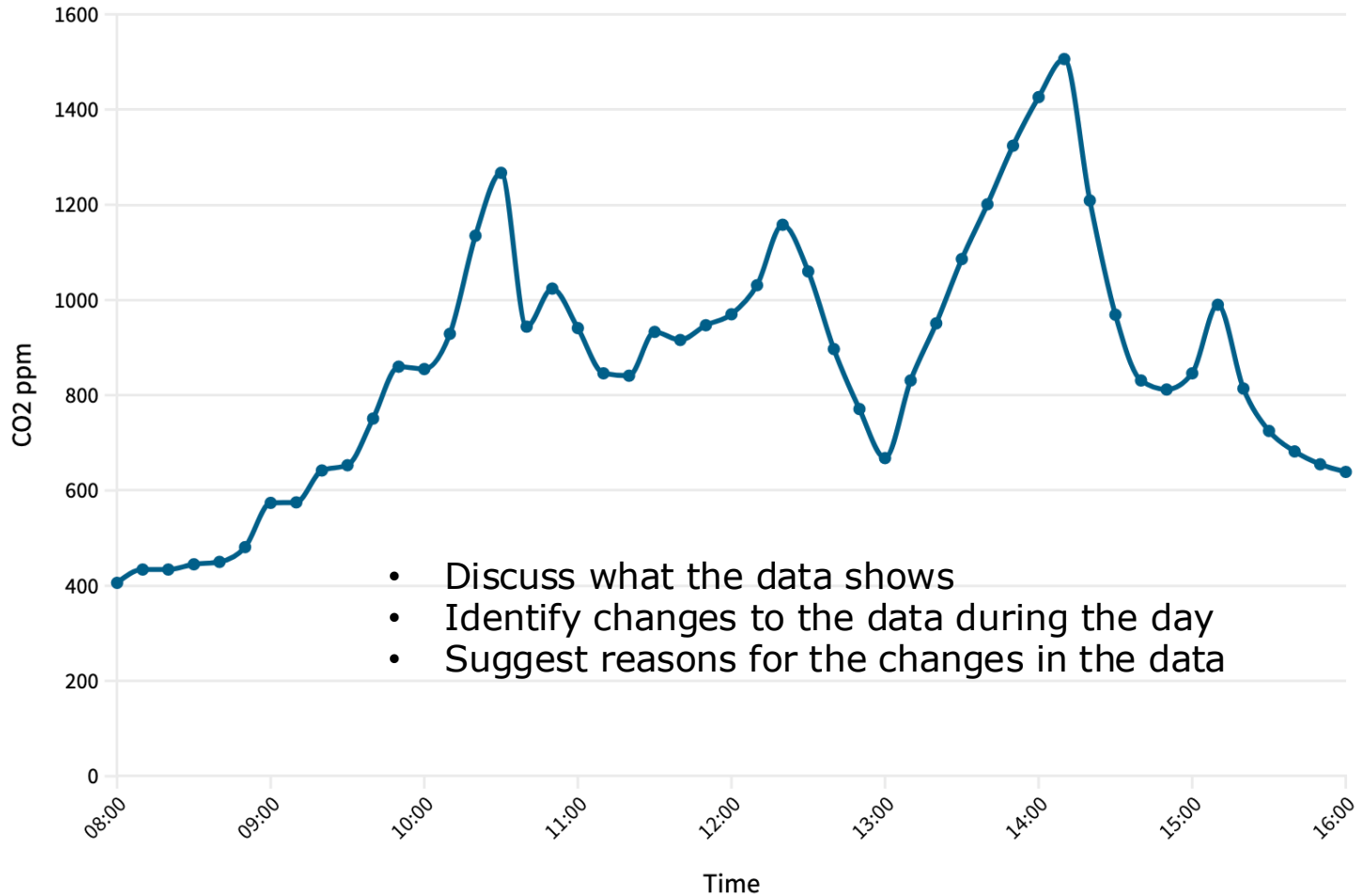


Here is Abbie's classroom at Cladach Primary School. Where would be a good place to put the sensor and why?

We are now going to look at CO₂ data recorded by the sensor in the classroom for a single day.

- Discuss what the data shows
- Identify changes to the data during the day
- Suggest reasons for the changes in the data

CO2 in P6 Cladach Primary School



Activity 3

Investigating Our Learning Environment



Learning intention

We are learning how to plan and carry out an investigation into our classroom environment using the PPDAC model.

Success criteria

- I can identify the problem to be investigated.
- I can plan an investigation.
- I can describe how our sensor will provide us with data.
- I can work well in groups.

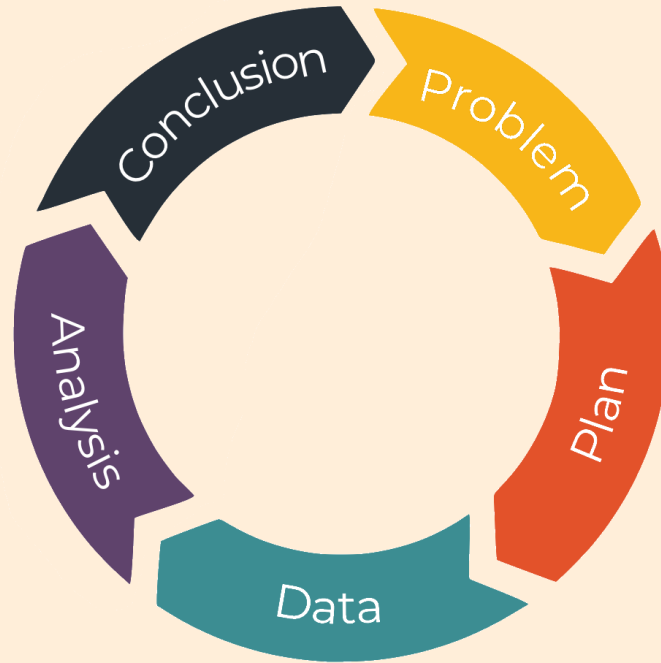
Investigation

We want to find out if CO₂ affects our learning.

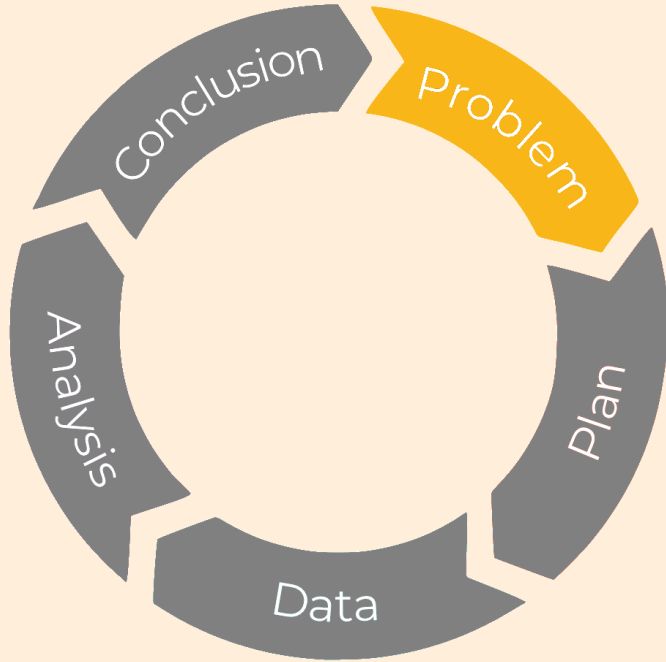
The PPDAC Method

We are going to investigate using the PPDAC method.

The PPDAC Method

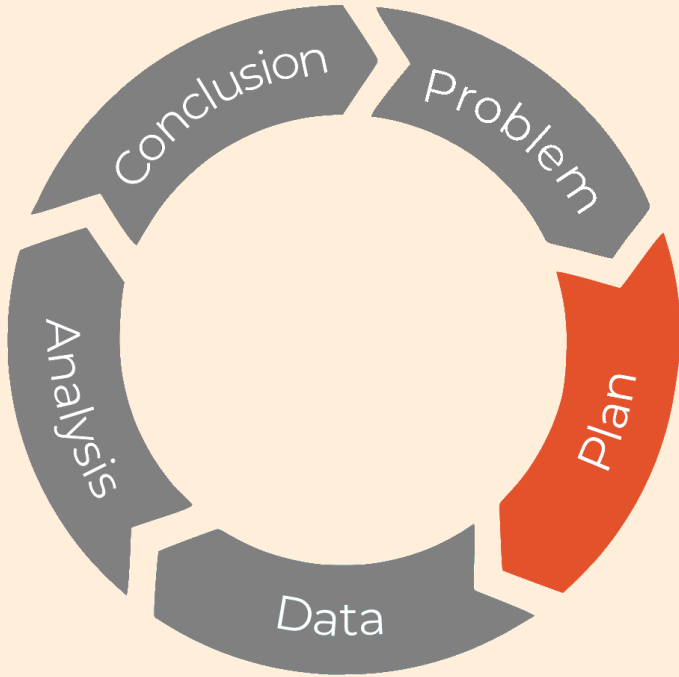


The Problem



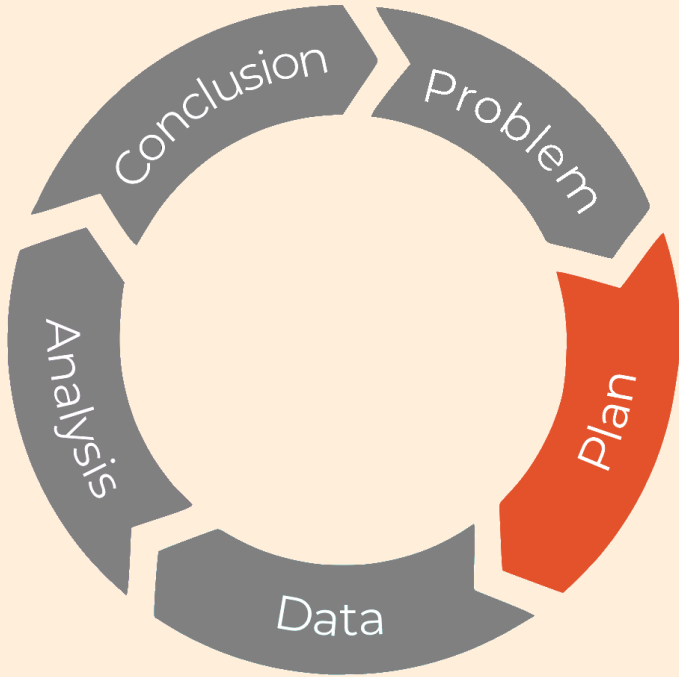
We want to know if CO₂ could be affecting our learning.

The Plan



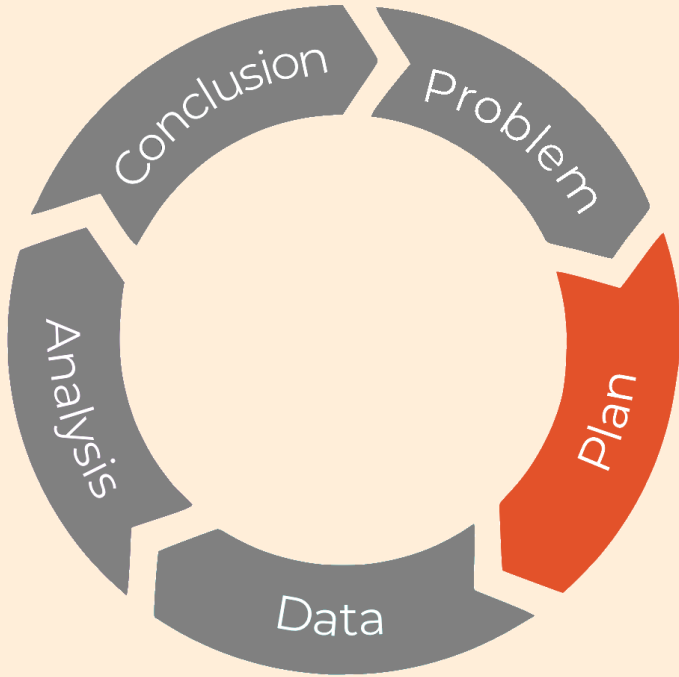
We will plan how we will gather the data on CO₂.

The Plan



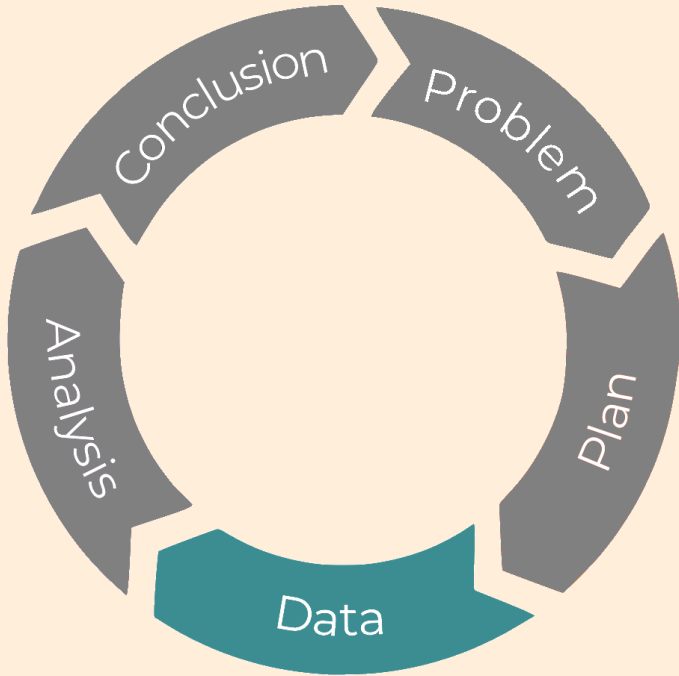
We will use an indoor environment sensor to capture data about our CO₂.

The Plan



Where in the classroom would be the best location for the sensor?

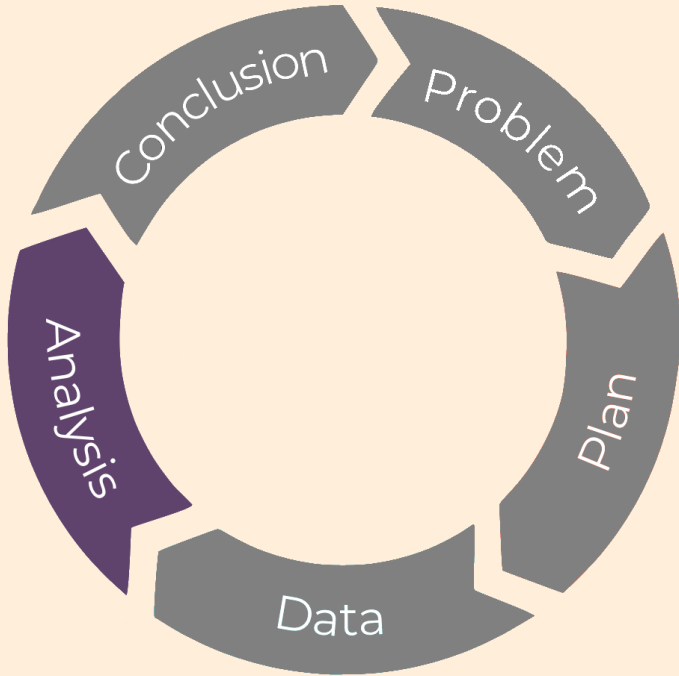
Data



We will gather data about
CO₂ in our classroom.

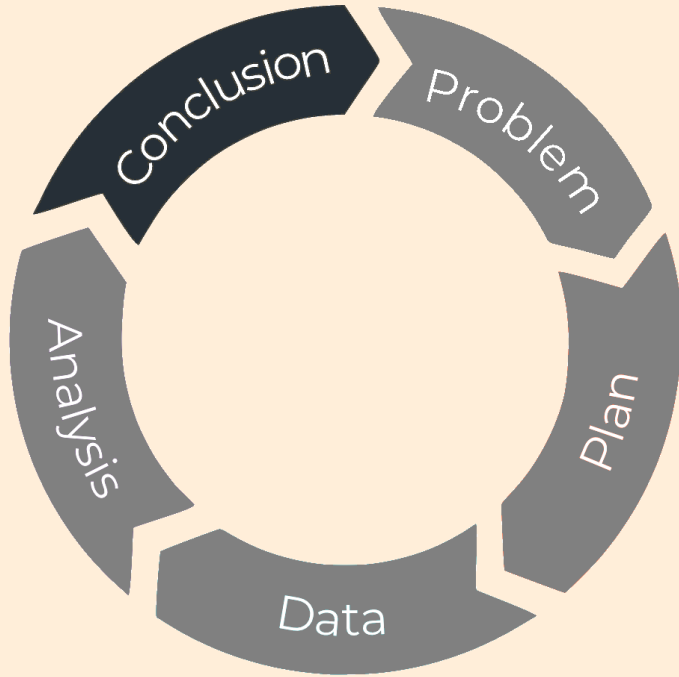
How long should we gather the data for?

Analysis



We will analyse the data to understand if CO₂ could be affecting our learning.

Conclusion



We will draw conclusions
from our investigation.

Activity 4

Analysing our Data



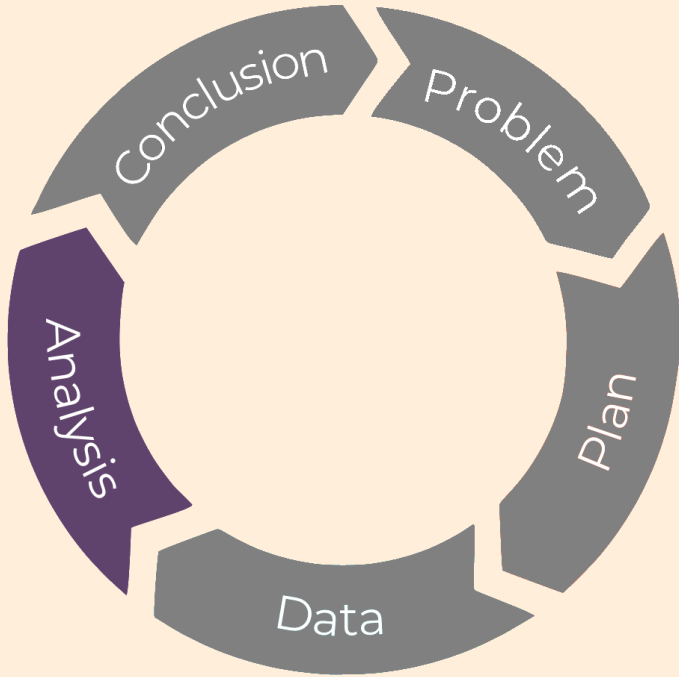
Learning intention

We are learning how to analyse sensor data about our classroom.

Success criteria

- I can identify changes to classroom data, such as temperature, CO2 and light levels.
- I can suggest possible reasons for changes data during the school day.

Analysis



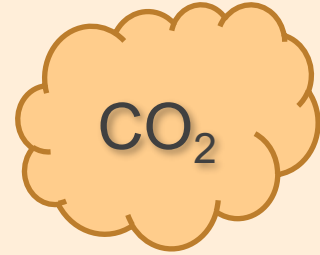
We will analyse the data to understand how different environmental factors affect our learning.

Analysing the Dashboard

What is the dashboard telling us about CO₂ levels in our classroom?

At what times of day are CO₂ levels highest and lowest? Can you spot trends?

Suggest possible reasons for the changes in CO₂ levels.



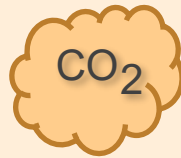
Carbon dioxide

Analysing the Dashboard

In groups, discuss what we've learned from our analysis of dashboard.

Agree possible explanations for changes to sensor data during the day.

Describe how changes to our classroom environment affects our learning.



Activity 5

Improving our Learning Environment



Learning intention

- We can draw conclusions from our learning environment investigation.
- We are looking to improve our learning environment
- We will create a presentation about our investigation and share it with the class.

Success criteria

- I can describe the problem to be investigated.
- I can describe how we planned the investigation.
- I can describe the role of data in our investigation.
- I can describe how we analysed the data.
- I can describe the main conclusions of our investigation.
- I can suggest ways of improving our classroom environment.

Improving Air Quality

What do we know about how CO₂ levels in our classroom affect our learning?

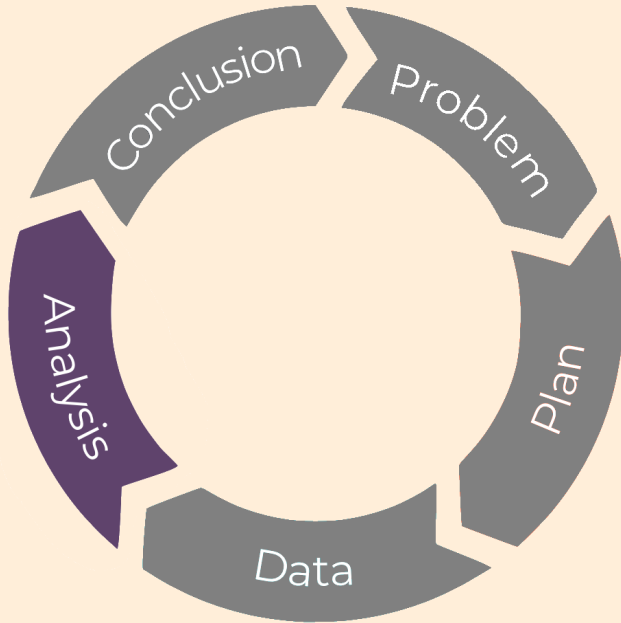
What changes could we make to reduce CO₂ in our classroom and improve air quality?

How will we know if these changes improve our learning?



Optimal Air
Quality

Analysis



We'll analyse data to see the effects of these changes on our classroom environment.

Activity 6

Can plants improve our learning environment?



Learning intention

- We can implement suitable interventions to improve air quality in the classroom.
- We see the changes in CO2 data from the sensors
- We can suggest further interventions to improve air quality

Success criteria

- I can summarise the interventions I have put in place and the effects that I would expect to see
- I can draw conclusions from the analysis of the sensor data once the interventions are in place
- I can suggest further ways of improving our classroom environment.

Optimal Air Quality

What do we know about how air quality affects our learning?

What changes could we make to improve air quality in our classroom?

How will we know if these changes improve our learning?



Optimal Air
Quality

Can plants improve quality in our classroom?

Use the Internet to find out if plants can help create a better learning environment.



Can plants improve quality in our classroom?

Use the Internet to find out if plants can help create a better learning environment.

Find out how plants reduce levels of Carbon dioxide.



Can plants improve quality in our classroom?

Use the Internet to find out if plants can help create a better learning environment.

Find out how plants reduce levels of Carbon dioxide.

Are there certain plants which are particularly effective in reducing levels of CO₂?



Can plants improve quality in our classroom?

Working in groups, plan an investigation to discover if plants can improve our learning environment.



Can plants improve quality in our classroom?

Remember the PPDAC investigation model.

