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Supporting the Professional Learning of School Leaders and Teachers

Supporting Student Engagement with CBA 2

Statistical Investigation

Meet the Team

- Applied Mathematics @OideAppliedMath
- Computer Science @Oide_CompSci
- Mathematics @Oide_PPMaths
- Numeracy

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Administrator: Grainne Haughney

Keep in Touch

Join our Mailing List!

SCAN ME

https://tinyurl.com/oidemaillist

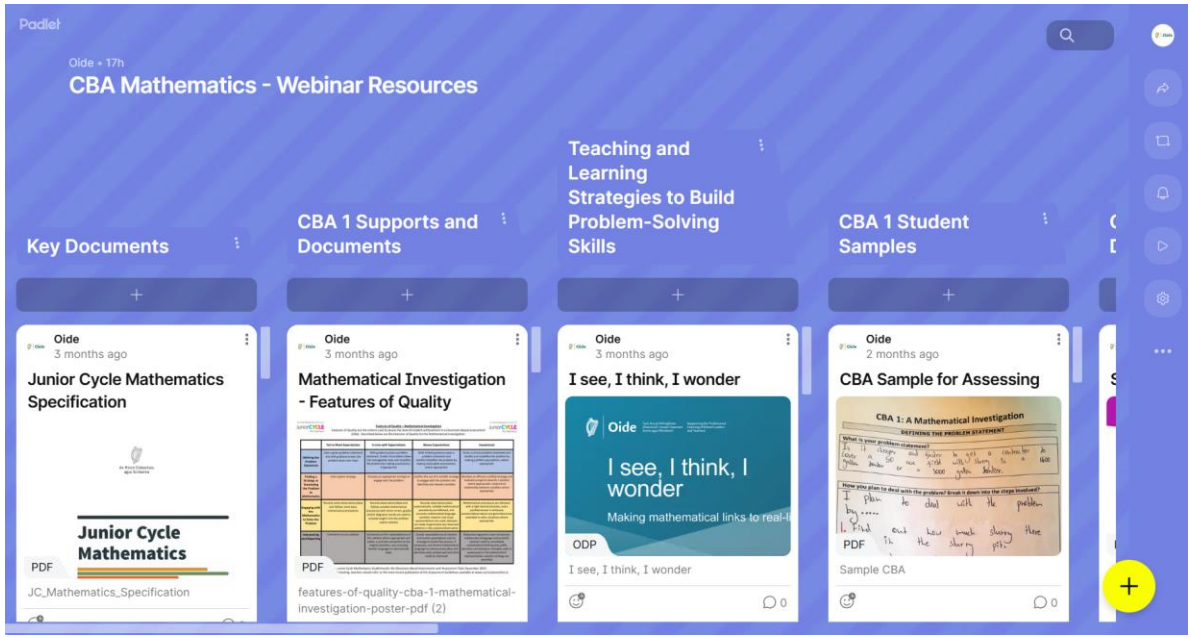
Overview

	Introduction
	Before CBA2
	During CBA2
	Teacher Experience
	Reflections

Key Message

To empower teachers to confidently guide students through meaningful, ethically grounded statistical inquiries that build real-world decision-making skills, strengthen clear communication, and foster deep critical reflection.

Resources - Padlet



By the end of this webinar, you will:

Understand how the Statistical Enquiry Cycle supports students in completing CBA 2.

Explore how the Features of Quality can be used as a guide for student feedback, ensure consistent assessment approaches and enhance our shared understanding of CBA 2

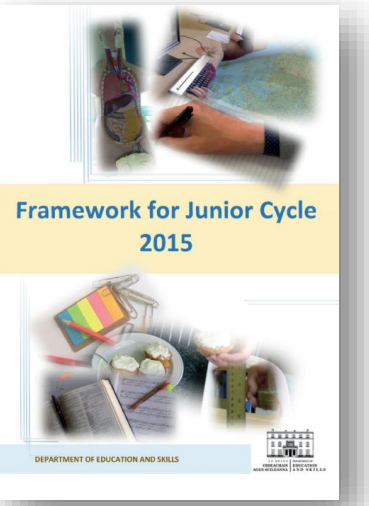
Reflect on your current practices and identified areas for professional growth to ensure students are benefitting from the CBA process

Significance of CBAs for Junior Cycle

"A **dual approach to assessment**, involving classroom-based assessment across the three years and a final externally-assessed, state-certified examination can enable the appropriate **balance** between preparing students for examinations and also facilitating creative thinking, engaged learning and better outcomes for students.

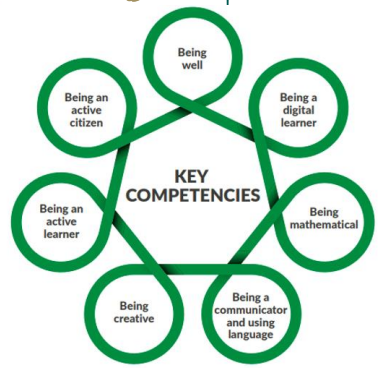
This approach will **recognise and value the different types of learning** that take place in schools and will allow for a more rounded assessment of the educational achievements of each young person."

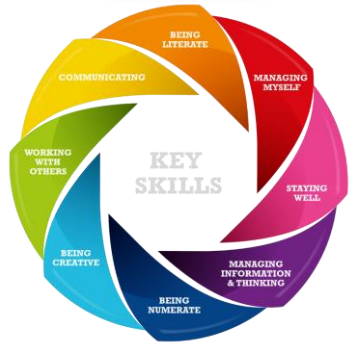
(Framework for Junior Cycle 2015, p.35)

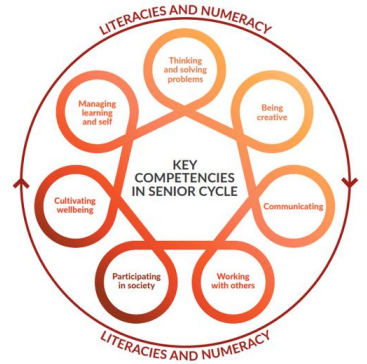


CBAs help us to:

- Promote skills like problem-solving, collaboration, and reasoning
- Develop students' autonomy, ability to articulate learning and tackle open-ended tasks
- Enhance authentic and student-centred learning in your classroom from 1st to 6th year
- Support transition to a world that values application of knowledge over rote learning
- Foster formative assessment approach







CBA 2 Timeline: An Overview

Students engage in CBA 2 over a three-week period during class time

Teachers assign initial grade descriptors using the Features of Quality

SLAR meeting is conducted within one month of students finishing the CBA

Descriptors are amended if necessary, then awarded and feedback is given to students

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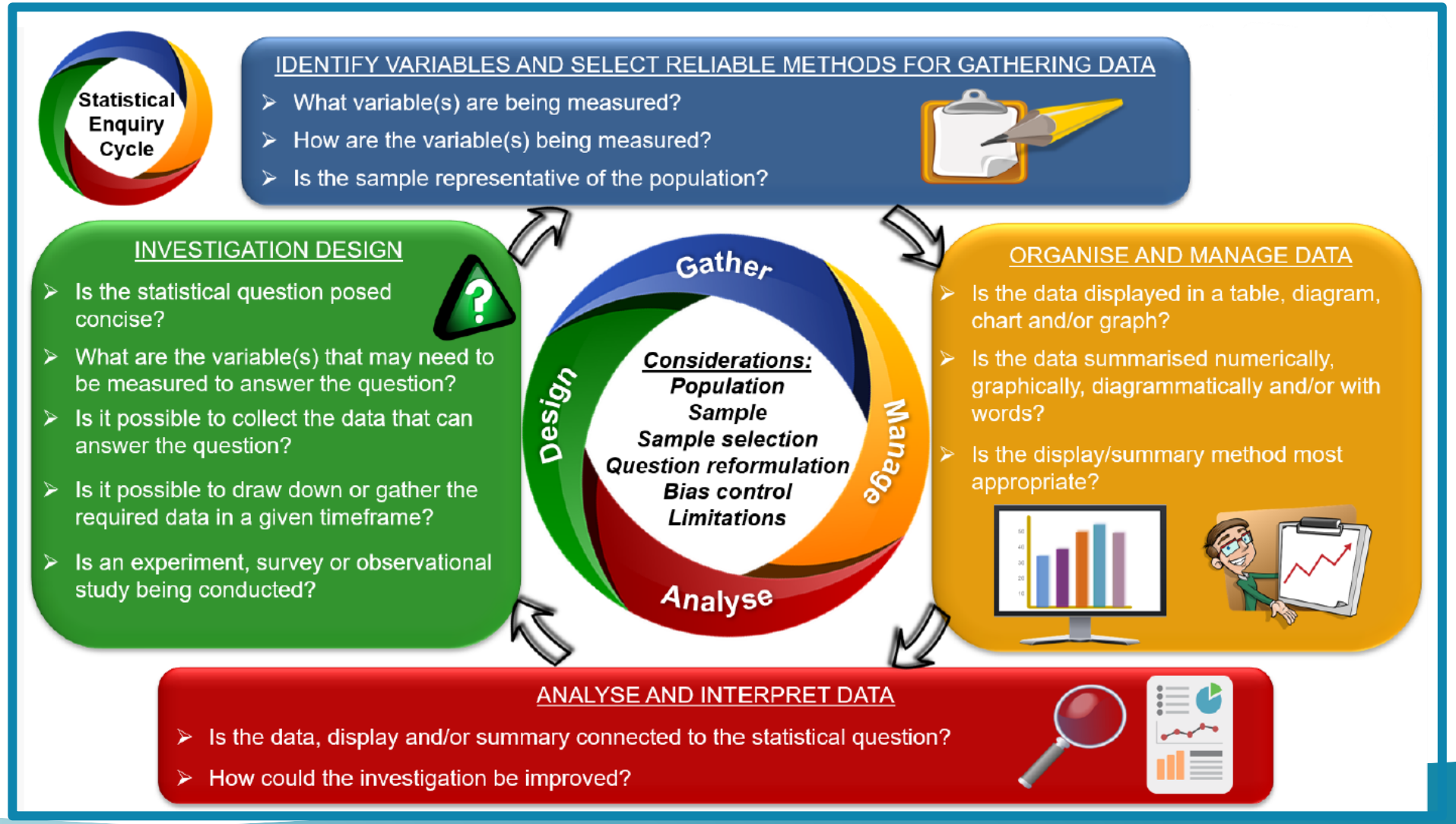
Supporting the Professional Learning of School Leaders and Teachers

Supporting Student Learning before CBA 2

Statistical Enquiry Cycle



Breakout Room - Discussion

How can I embed the statistical enquiry cycle into everyday maths lessons using real-life contexts?

Student agency and autonomy

Prior knowledge
- Other CBAs
- Primary

Student confidence & independence

Classroom environment & relationships

10-15mins

HOW TO BE A CLIMATE HERO

PART TWO: FAST FASHION

Sample for students

Brainstorming: From Video to Data

Name: _____ **Class:** _____

Step 1: The Data Hook *Watch the video closely. Write down 3 specific statistics (numbers, percentages, or facts) that stood out to you.*

1. _____
2. _____
3. _____

Step 2: The "Wonder" Phase *Based on the video, complete these sentences to help form a question.*

- **I wonder if students in our school...** (e.g., *spend as much time on TikTok as the video suggests?*)
- **I wonder if there is a difference between...** (e.g., *1st years and 6th years? Boys and Girls?*)

Step 3: Draft Your Statistical Question *A good CBA question usually compares two groups or looks for a relationship. Pick one idea from above and turn it into a question.*

My Draft Question:

_____

Step 4: The Reality Check (Feasibility) *How would you actually get the answer? Circle the best option.*

- **Option A (Primary Data):** I will survey students in my school.
  - *Who would you ask?* _____
- **Option B (Secondary Data):** I will find data online (CSO.ie etc.).
  - *Where might you look?* _____

Step 5: Variables *To make a graph, you need variables. What exactly are you measuring?*

- **Numerical Variable (A Number):** (e.g., *Minutes spent on phone, grams of food waste*)
- **Categorical Variable (A Word/Group):** (e.g., *Year Group, Gender, Yes/No*)

Step 6: Planning Your Data Collection

Survey questions:

How will you avoid bias?

Sample size and why:

Step 7: Choosing and Creating Your Graphs

Graphs I will use: Bar / Pie / Histogram / Line / Stem & Leaf / Scatter

Why these graphs fit my variables:

Graph Checklist:
□ Title □ Labels □ Units □ Scale □ Accuracy

Step 8: Analysing Your Data

Observations from my graphs:

Mean: ___ Median: ___ Mode: ____ Range: ___

Outliers:

_____

Step 9: Making a Conclusion

Write a conclusion that answers your question using data.

Step 10: Reflection

What went well?

Limitations?

Improvements for next time?

New question to explore:

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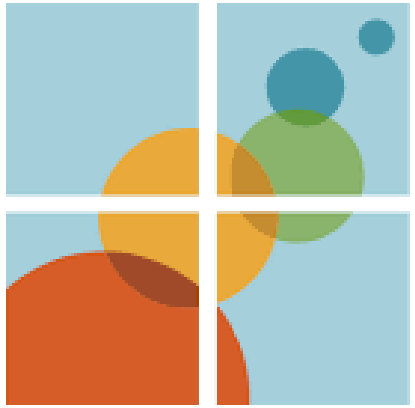
Digital Technologies



CODAP

An Phríomh-Oifig Staidrimh
Central Statistics Office

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Supporting the Professional Learning of School Leaders and Teachers

Supporting Student Learning during CBA 2

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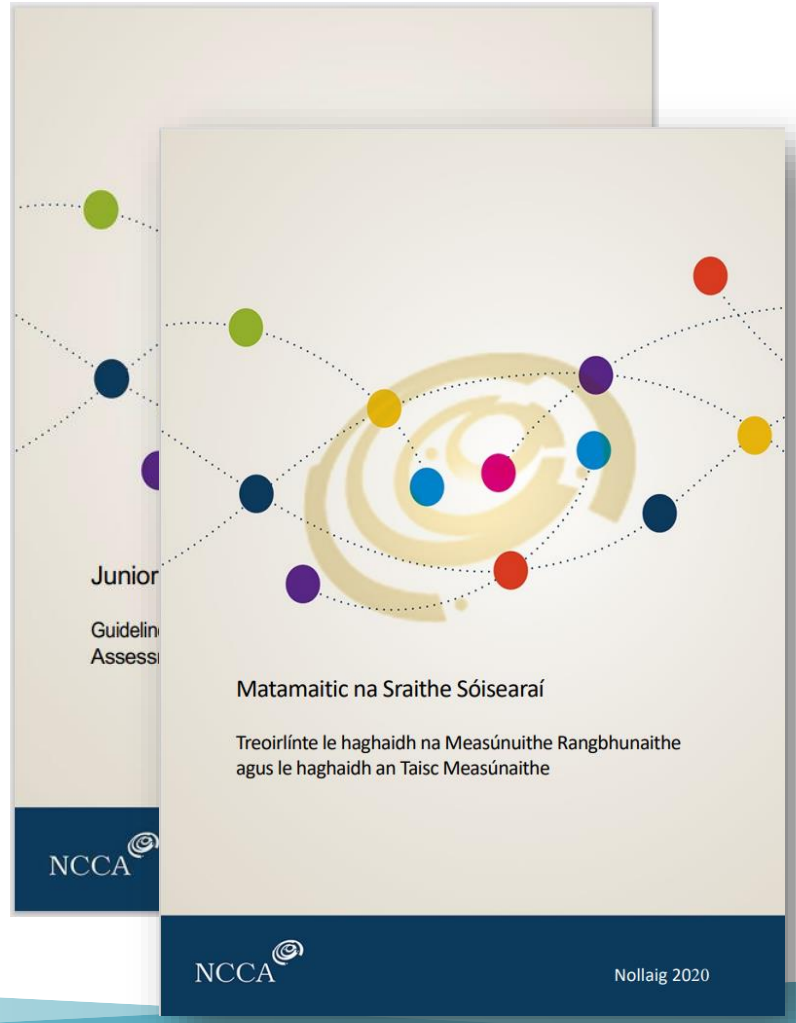
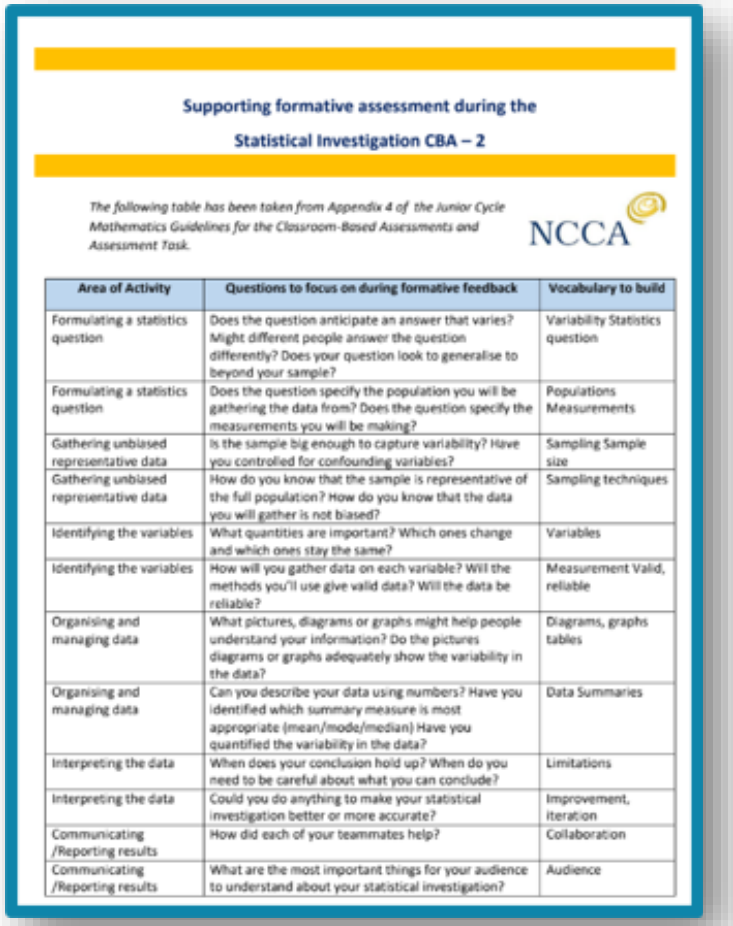
Supporting the Professional Learning of School Leaders and Teachers

Exploring Student Experiences

How can teachers support students during CBA 2?





Supporting formative assessment during the Statistical Investigation CBA – 2

The following table has been taken from Appendix 4 of the Junior Cycle Mathematics Guidelines for the Classroom-Based Assessments and Assessment Task.

NCCA

Area of Activity	Questions to focus on during formative feedback	Vocabulary to build
Formulating a statistics question	Does the question anticipate an answer that varies? Might different people answer the question differently? Does your question look to generalise to beyond your sample?	Variability Statistics question
Formulating a statistics question	Does the question specify the population you will be gathering the data from? Does the question specify the measurements you will be making?	Populations Measurements
Gathering unbiased representative data	Is the sample big enough to capture variability? Have you controlled for confounding variables?	Sampling Sample size
Gathering unbiased representative data	How do you know that the sample is representative of the full population? How do you know that the data you will gather is not biased?	Sampling techniques
Identifying the variables	What quantities are important? Which ones change and which ones stay the same?	Variables
Identifying the variables	How will you gather data on each variable? Will the methods you'll use give valid data? Will the data be reliable?	Measurement Valid, reliable
Organising and managing data	What pictures, diagrams or graphs might help people understand your information? Do the pictures diagrams or graphs adequately show the variability in the data?	Diagrams, graphs tables
Organising and managing data	Can you describe your data using numbers? Have you identified which summary measure is most appropriate (mean/mode/median) Have you quantified the variability in the data?	Data Summaries
Interpreting the data	When does your conclusion hold up? When do you need to be careful about what you can conclude?	Limitations
Interpreting the data	Could you do anything to make your statistical investigation better or more accurate?	Improvement, iteration
Communicating /Reporting results	How did each of your teammates help?	Collaboration
Communicating /Reporting results	What are the most important things for your audience to understand about your statistical investigation?	Audience

Ag tacú le measúnú foirmitheach i rith Mheasúnú Rangbhunaithe 2: Imscrúdú Staitistiúil

Student Friendly Features of Quality

CBA Stage	Yet to Meet Expectations	In Line with Expectations (The Basics)	Above Expectations (Good Quality)	Exceptional
1. Posing the Question (The Idea)	• I used a question that was given to me or copied from somewhere else. • The question is unclear or not statistical.	• I asked a simple question with a Yes/No answer. • Example: *"Do students like football?"*	• I asked a question that compares two groups. • Example: *"Do 1st Years play more sport than 3rd Years?"*	• I asked a challenging question with a clear purpose. • I explained why I chose this topic and who would find the answer useful.
2. Collecting Data (The Survey / Source)	• I collected very little data or didn't explain where it came from. • My data may not be reliable or fair.	• I asked a few friends or used one simple table online. • I didn't really think about bias.	• I surveyed a decent number of people (e.g. 30+). • I used a reliable source (e.g. CSO.ie). • My data is organised in a neat table.	• I thought about bias and made sure my sample was fair or random. • If I used online data, I checked it against another source.
3. Analysing Data (The Maths)	• I made little or no use of graphs or calculations. • My graphs may be unclear or incorrect.	• I drew 1–2 simple graphs (e.g. bar chart). • I calculated the mean.	• I used a mix of graphs (e.g. bar chart + pie chart / stem-and-leaf). • I calculated the mean, median and range. • All graphs have titles and labels.	• I chose the *best* graph for my data and explained why. • I explained what the mean/median tells us. • I looked for outliers.
4. Reflecting (The Conclusion)	• My conclusion does not link back to my original question. • I mainly	• I stated the answer clearly. • Example: *"Yes,*	• I answered the question using numbers from my data. • I	• I discussed limitations (e.g. *"I only surveyed boys"*). • I

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Supporting the Professional Learning of School Leaders and Teachers

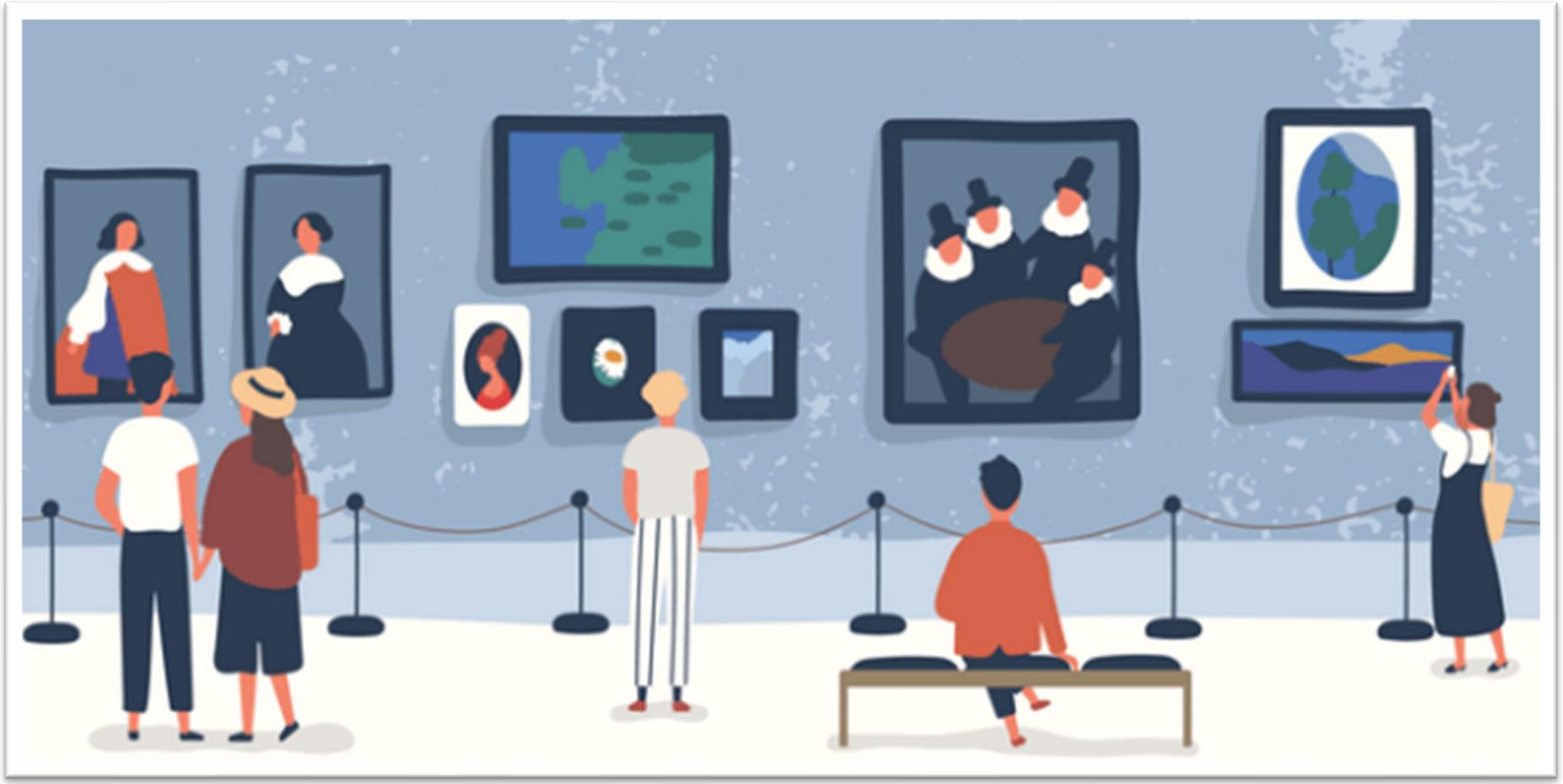
Exploring Student Experiences and samples of work

Breakout Room - Activity

- What feedback could you provide a student to help them improve their next Statistical Investigation?

10-15 mins

Feedback



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Supporting the Professional Learning of School Leaders and Teachers

Teacher's Experience

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Supporting the Professional Learning of School Leaders and Teachers

Conclusion

Reflection: From this webinar, can you list

3 things you have learned

2 things you are going to do differently

1 thing you would like to learn more about.