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The data cycle in action:

Shaping future-ready learning

Lavaniya Ganeson, Louise Rowley and Simon Child

8 & 9 December 2025

Cambridge Schools Conference, December 2025
Future-ready: preparing learners to thrive

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AGENDA

- Introductions
- Introduction to the Data Cycle
- Data Cycle in Action
- Data Analysis
- Summary
- Update of future of Cambridge Insight
- Q&A and Feedback

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Facilitators

Lavaniya Ganeson

Regional Cambridge Insight Manager SEAP

- Head of Examination and school leader (Deputy Principal) in one of the CAIE large school chains.
- Cambridge paper examiner for Additional Mathematics
- Actuarial Science background of study.
- MEd in Transforming Practice from the Faculty of Education University of Cambridge and has done extensive studies around the use of AI and the perceived impact on cognitive ability of students.

Louise Rowley

Cambridge Director
K-12 bilingual school in Vietnam

- focussed on Primary and Lower Secondary levels while building towards GSCE and A-Levels.
- PGCE
- 8 years of teaching and management experience within the Cambridge curriculum.

Simon Child

Head of Assessment Training

- Director of PACES: Educational Assessment (University of Cambridge)
- Research interests: assessment for learning, assessment literacy, developmental psychology

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ICE BREAKER

1. Without talking, get into a group of people who belong to the same birthday month and arrange yourselves into the order of the birthday date.

2. Once you're sorted – share 3 P's (personal, professional and peculiar) about yourself with the group.

3. Pick a leader to summarise the 3 P's to the rest of the group.

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KAHOOT TIME ☺

https://create.kahoot.it/creator/6e285963-83d8-4a21-9f73-c8b2622fb678

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Introduction to the Data Cycle

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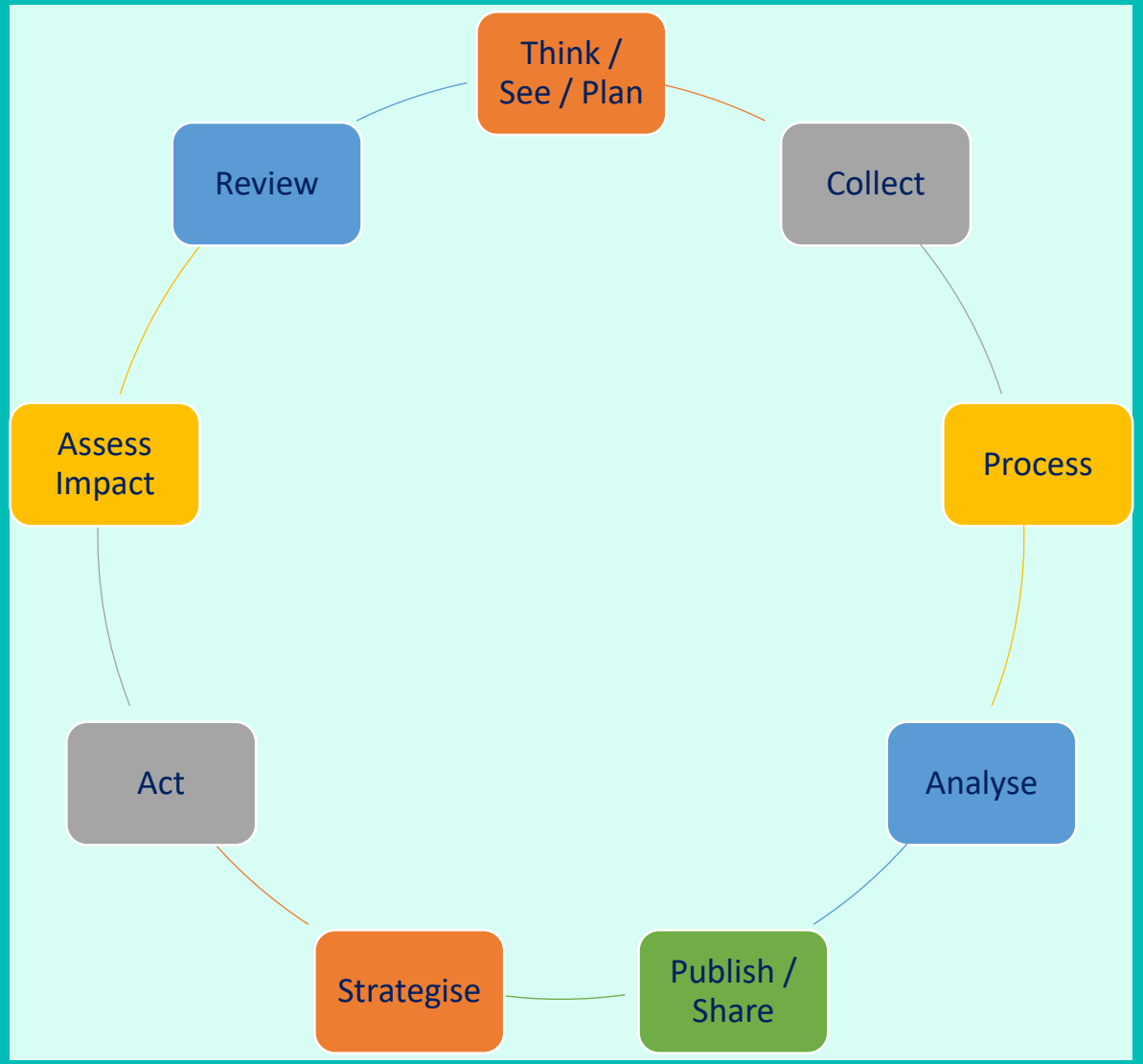
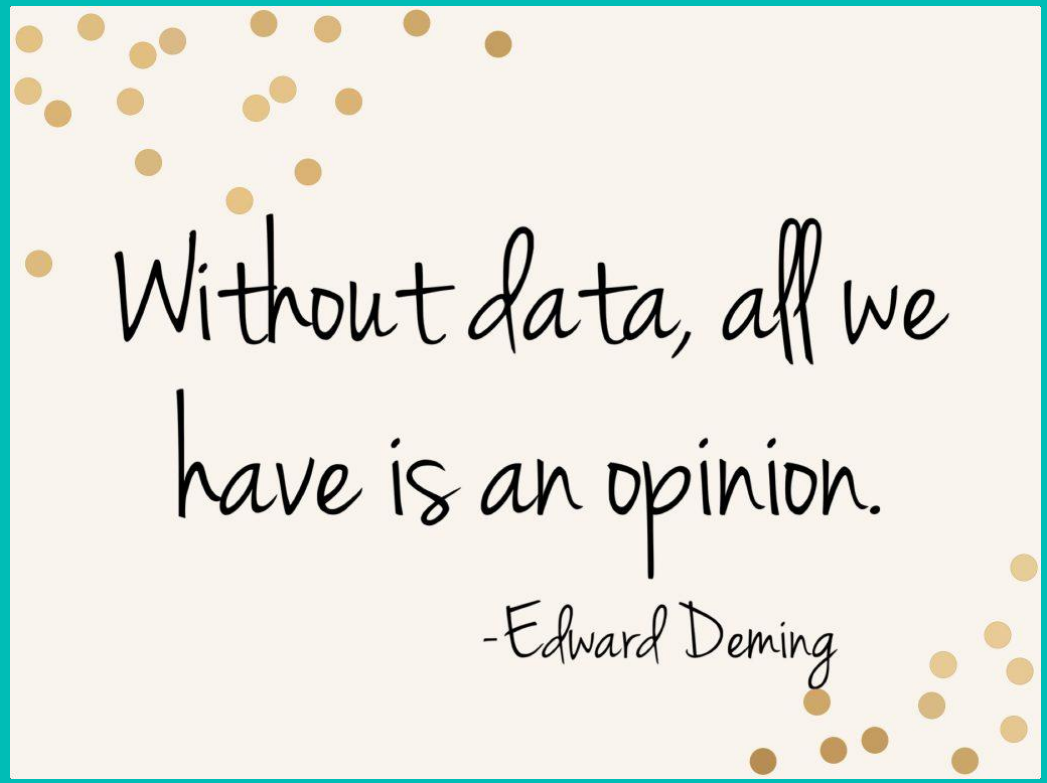
Data Cycles

- Moving towards more evidence-based practice

- Working through a data cycle
  - Levels of analysis and presentation, based on purpose and audience
  - Improvement and adaptation
  - Correlations and relationships between different datasets
  - Moving from collection to processing, analysing and using to strategise.

Adapted from DDI – 'Data Driven Instruction' from Richard Halverson and Jeffrey Grigg




Without data, all we have is an opinion.
-Edward Deming

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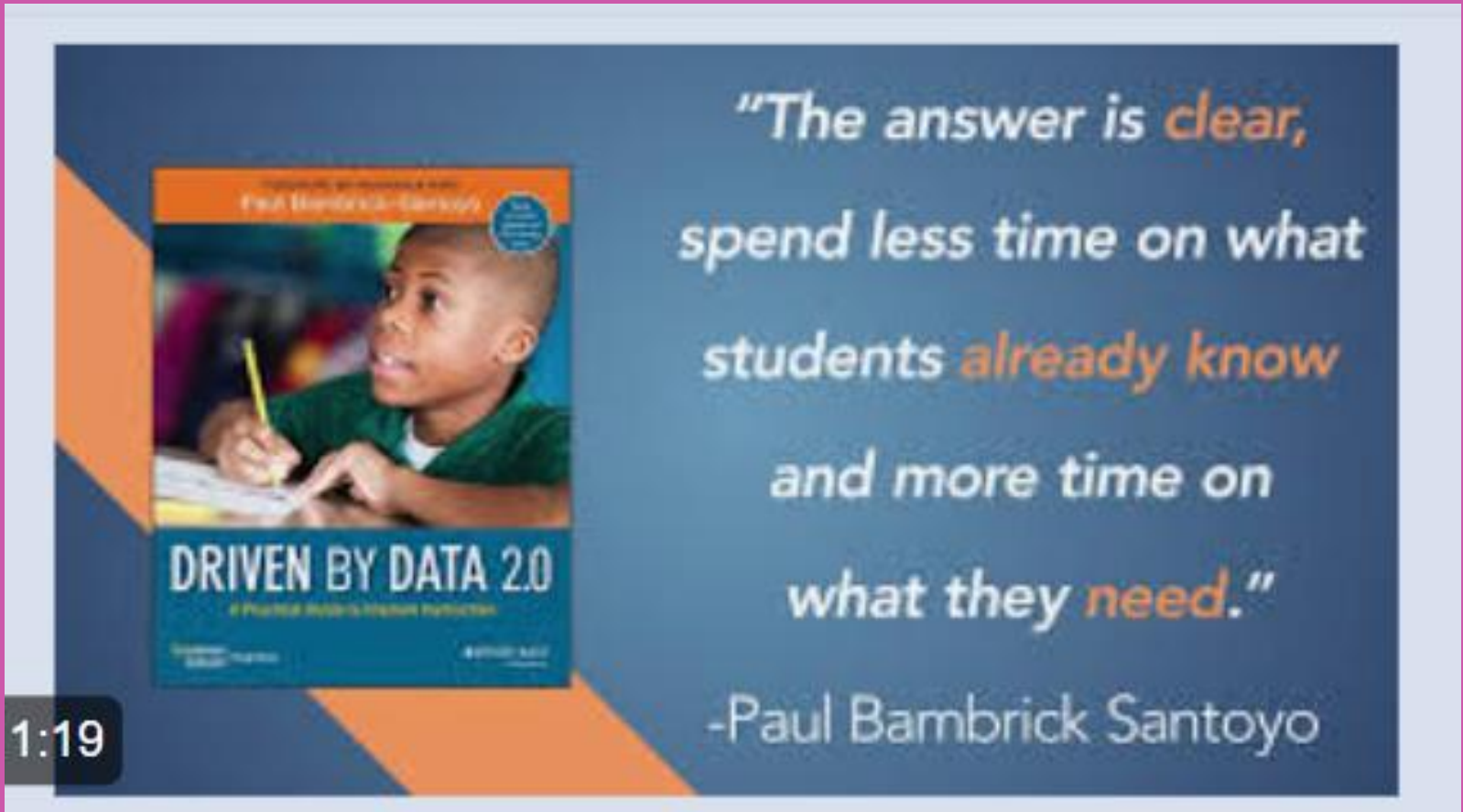
A brainscan cannot interpret itself and neither can a data dashboard in education.

— Andy Hargreaves —

AZ QUOTES


DRIVEN BY DATA 2.0
"The answer is clear, spend less time on what students already know and more time on what they need."
-Paul Bambrick Santoyo
1:19

TEACHING & DATA-DRIVEN PLANNING

STEAMspirations™

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What we do at Cambridge

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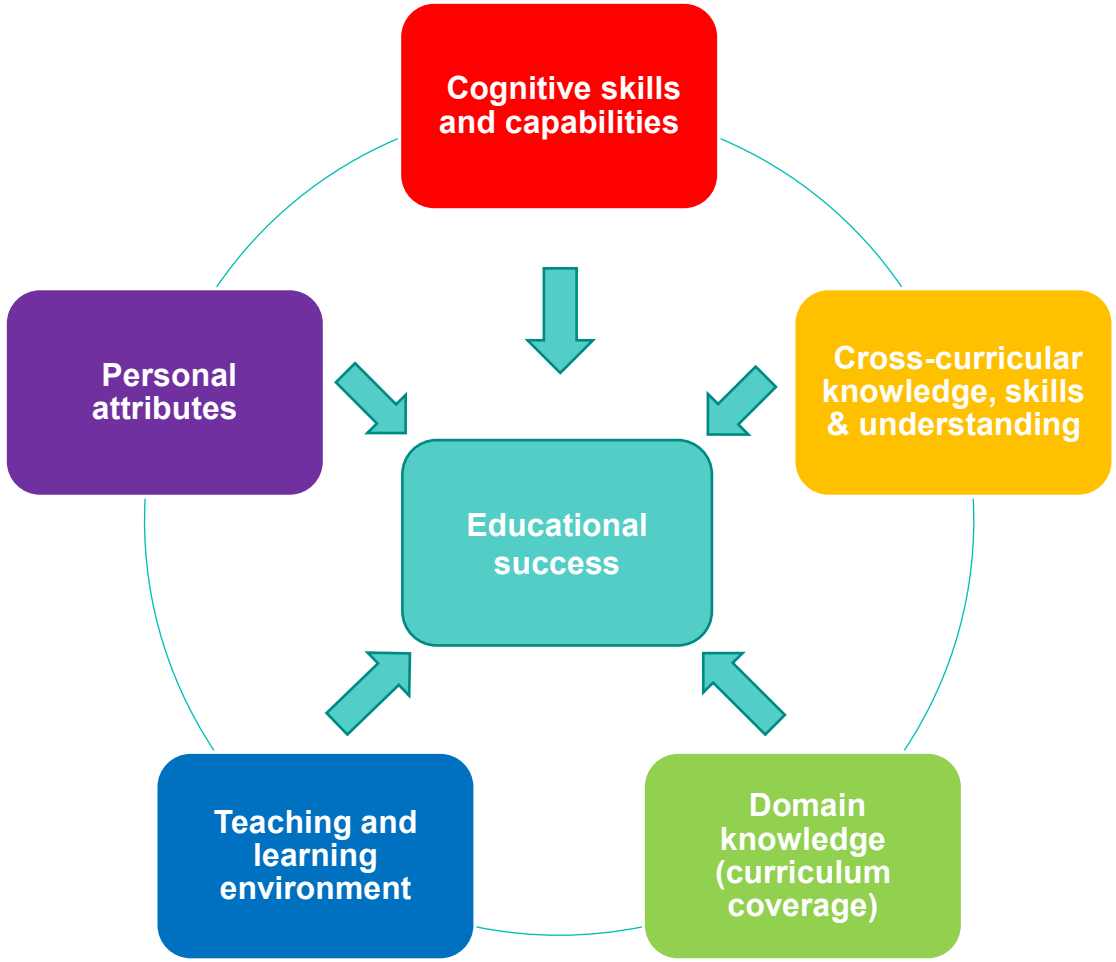
Cambridge Learner Profile Framework Research paper:

Blog post
Working with Schools in Southeast Asia to understand what contributes to success in education

Research paper
Creating Cambridge Learner Profiles: A holistic framework for teacher insights from assessments and evaluations



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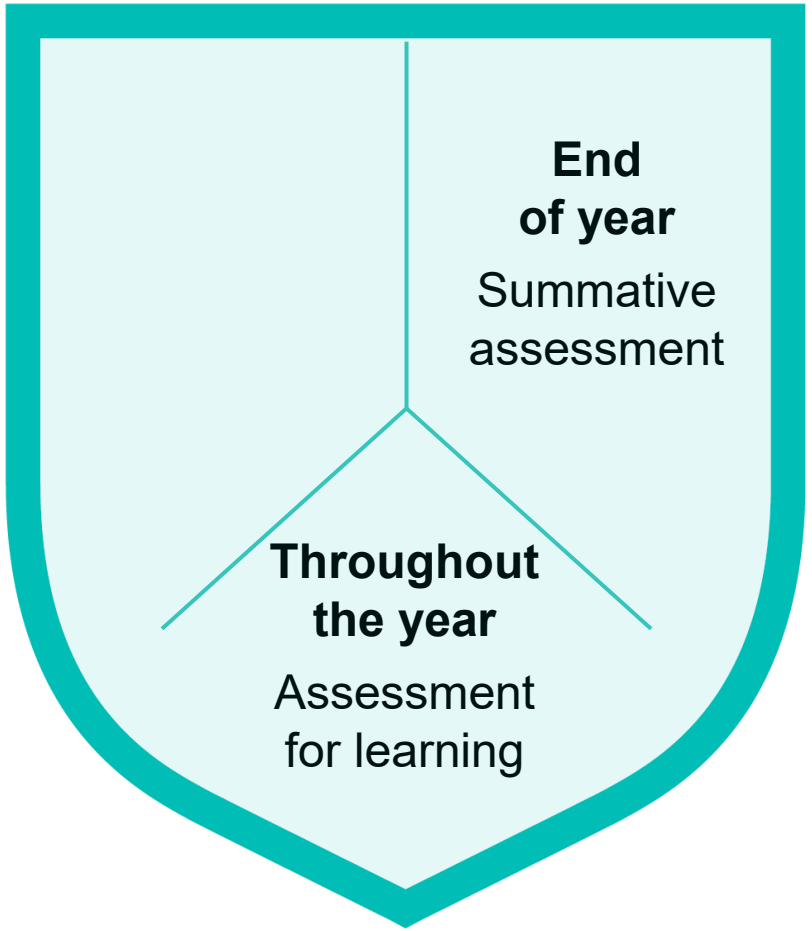
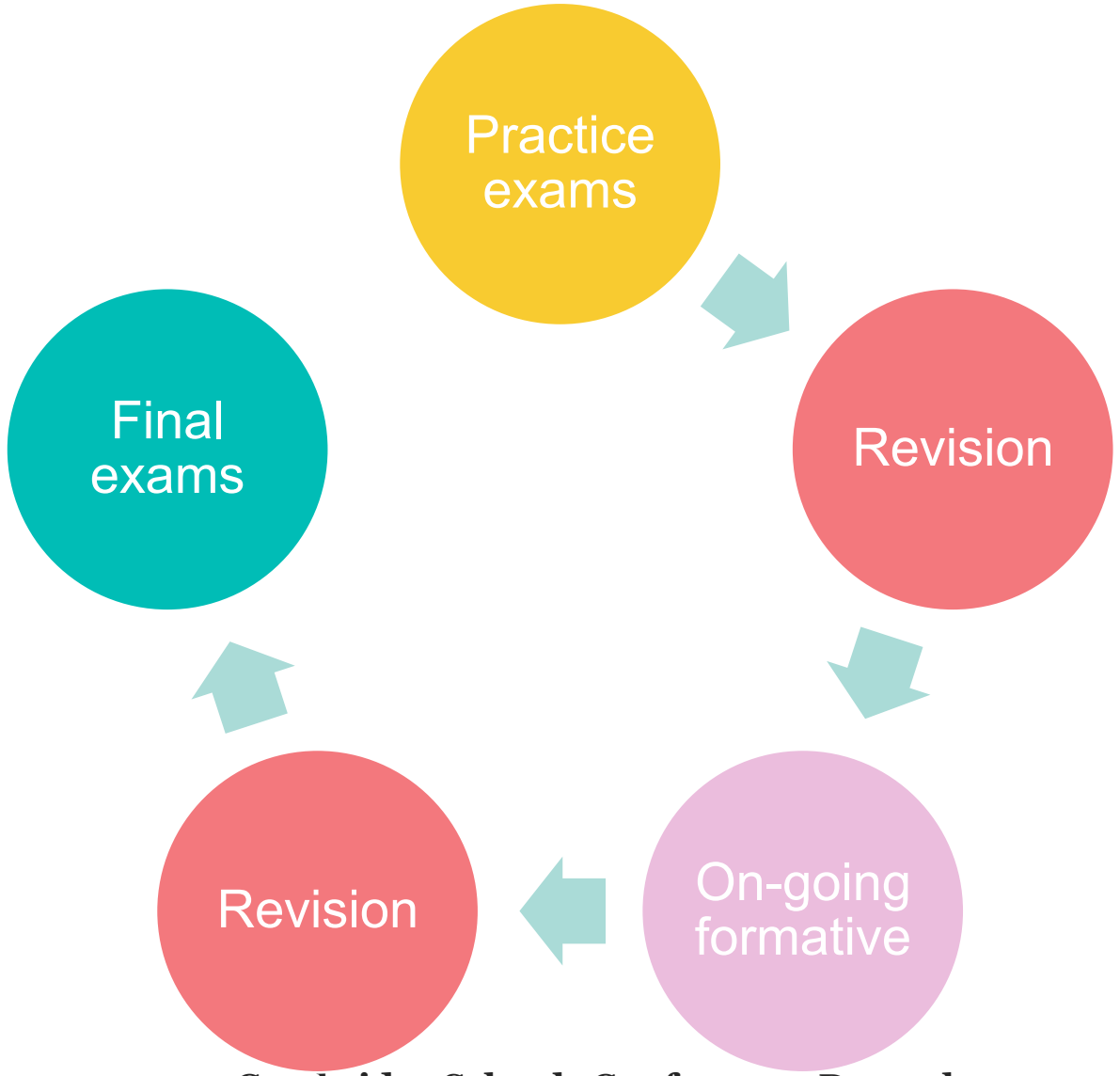
Typical assessment model





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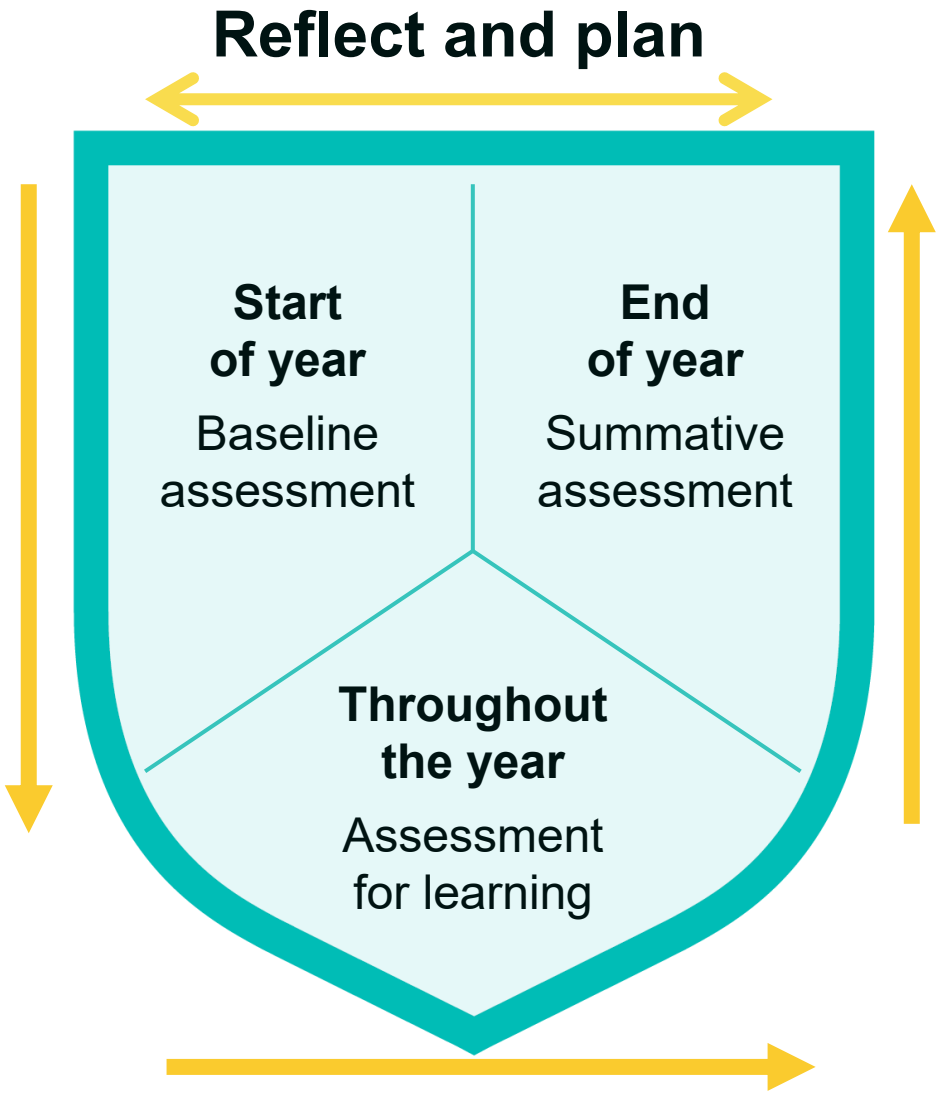
Assess for success model



- Curriculum agnostic
- Digital
- Adaptive and predictive
- Measures what matters
- Indicates potential
- Chances and predictions
- What could my learners achieve?

- Formal/high-stakes
- Assessment of learning
- Curriculum mastery
- How did my learners do?

- Informal/low stakes
- Assessment for learning
- Curriculum acquisition
- How are my learners doing?

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How does baseline improve performance?

“Using chances graphs has increased pupil motivation and focus.”

“It provides a great overview and focus on where improvements need to be made.”

“Helped develop exam skills and non-verbal skills in students.”

81%

of Cambridge Secondary Insight users agree that the data is effective in helping improve student performance

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Why baseline is important?

Advantages

- Provides a Starting Point
- Individualized Instruction
- Provides Data for Accountability
- Identifies Strengths & Weaknesses

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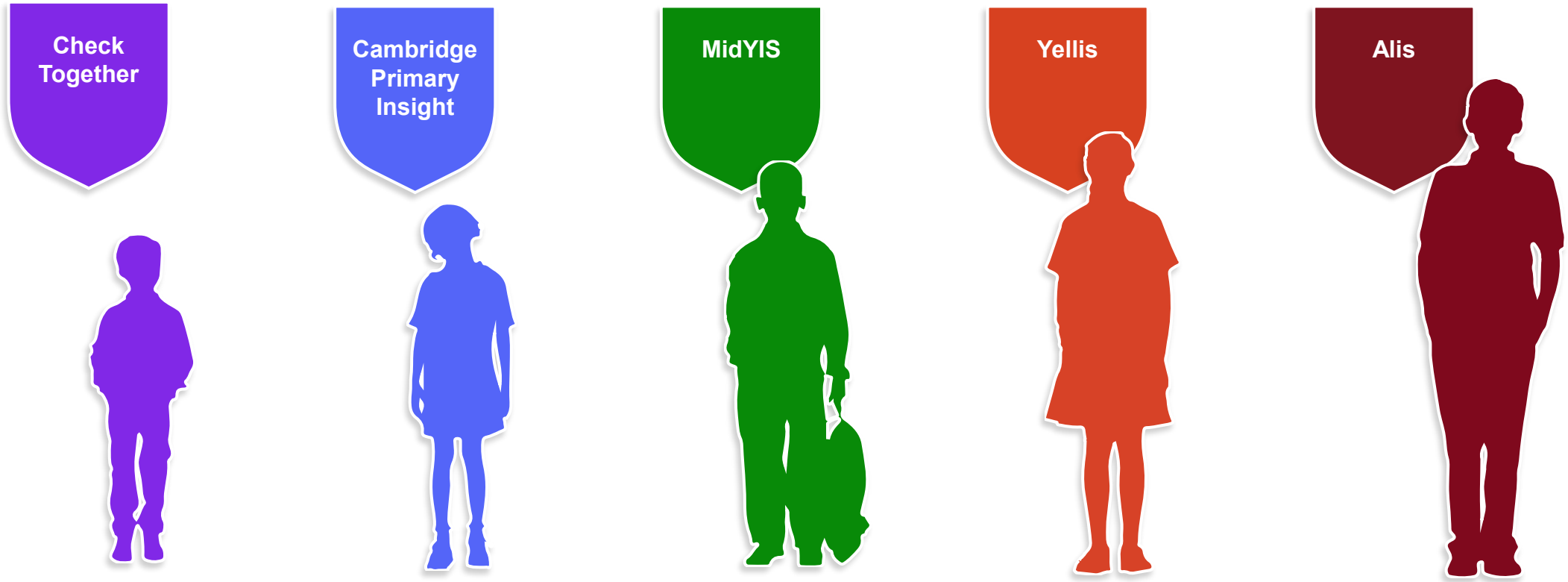
Cambridge Insight from 3-18 years



Early Years (ages 3-5)

Primary (ages 5-11)

Secondary (ages 11-16)

Post 16 (ages 16-18)

Cambridge Wellbeing Check

CPSQ (ages 14-19)

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Measure what matters – Aptitudes & Skills

Reading / Vocabulary

Maths

Non-Verbal

Check Together Age 3-4	Cambridge Primary Insight Age 5-11	MidYIS Age 11-14	Yellis Age 14-16	Alis/IBE Insight Age 16-18
Literacy	Reading	Vocabulary	Vocabulary	Vocabulary
Numeracy	Spelling	Mathematics	Mathematics	Mathematics
Personal, social and emotional development	Mathematics	Non-verbal ability	Non-verbal ability	Non-verbal ability
	Arithmetic	Skills		
	Developed ability			
20 minutes	20 minutes for each module	50 minutes	50 minutes	50 minutes

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What types of data do Cambridge Insight assessments give you?

Baseline data

Map what your students know

Longitudinal data

Monitor trends over time

Predictive data

Set targets and plan next steps

Value-added data

Review success and share best practice

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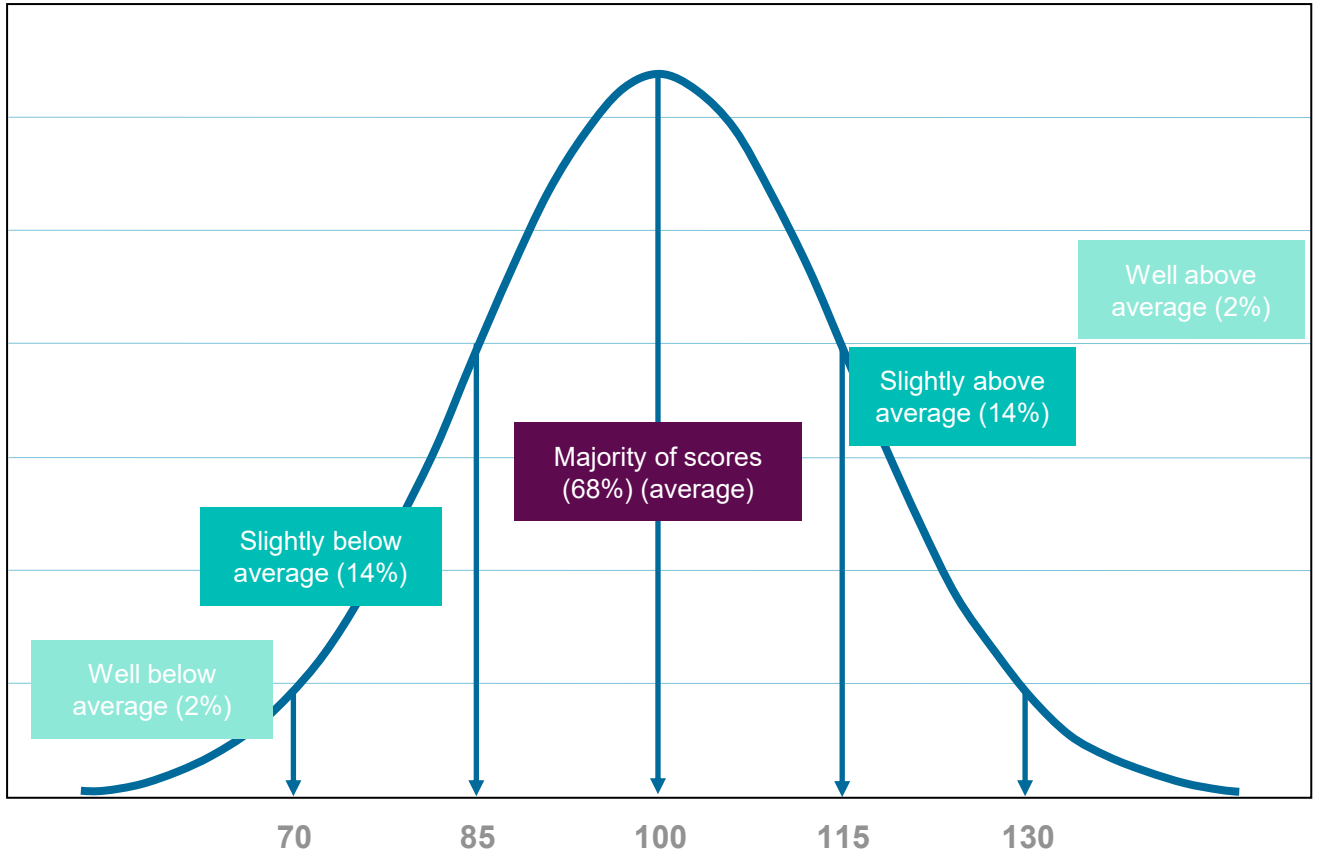
Standard deviations



Mean of 100

SD of 15 allows us to determine student scores that are slightly better than average or slightly worse than average and so on

All scores will be within 3 standard deviations of the Mean

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Summary of scores – Age equivalence display

Name	Year Group	Class	Date Of Birth	Age At Assessment	General Maths	Mental Arithmetic	Reading	Spelling	Developed Ability
Abbey Finland	Y2	YR02W	13/08/2011	9:3 To 9:4	9:0 (-0:3)	6:10 (-2:4)	10:2 (0:11)	10:0 (0:8)	6:0 (-3:2)
Ben Sweden	Y2	YR02W	28/08/2011	9:2 To 9:3	9:8 (0:5)	10:1 (0:10)	9:6 (0:3)	9:6 (0:4)	10:0 (0:9)
Nyah Croatia	Y2	YR02W	13/08/2011	9:3 To 9:6	10:3 (1:0)	9:10 (0:7)	11:0 (1:9)	10:8 (1:5)	10:0 (0:9)
Yara Mexico	Y2	YR02W	31/08/2011	9:2 To 9:4	9:5 (0:3)	9:1 (-0:1)	9:8 (0:4)	9:6 (0:2)	9:4 (0:1)
Jan India	Y2	YR02W	23/03/2011	9:8 To 9:9	9:0 (-0:8)	9:6 (-0:2)	9:9 (0:1)	9:10 (0:2)	9:6 (-0:3)
Paloma Panama	Y2	YR02W	18/06/2011	9:4	10:2 (0:10)	10:10 (1:6)	9:2 (-0:2)	9:0 (-0:4)	9:6 (0:2)

This is the age, in years and months, of the student at the time of taking the CPI assessment module.

Here we will see the achieved age equivalence, years and months, in each CPI assessment module. The age equivalence is the average age related difficulty of questions the student was capable of answering during the module.
Also displayed is the age difference between the students chronological age and their achieved age equivalence.

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Summary of scores – Age equivalence module breakdown display

Name	Year Group	Class	Date Of Birth	Age At Assessment	General Maths	Numbers	Algebra	Data Handling	Measure, Shape And Space
Abbey Finland	Y2	YR02W	13/08/2011	9:3 To 9:4	9:0 (-0:3)	9:0 (-0:3)	8:4 (-0:11)	10:8 (1:5)	9:1 (-0:2)
Ben Sweden	Y2	YR02W	28/08/2011	9:2 To 9:3	9:8 (0:5)	9:5 (0:2)	9:4 (0:1)	10:1 (0:8)	9:8 (0:5)
Nyah Croatia	Y2	YR02W	13/08/2011	9:3 To 9:6	10:3 (1:0)	9:11 (0:8)	10:4 (1:1)	10:5 (1:2)	10:1 (0:8)
Yara Mexico	Y2	YR02W	31/08/2011	9:2 To 9:4	9:5 (0:3)	9:7 (0:5)	9:4 (0:2)	9:8 (0:6)	9:4 (0:2)
Jan India	Y2	YR02W	23/03/2011	9:8 To 9:9	9:0 (-0:8)	9:0 (-0:8)	8:11 (-0:9)	9:1 (-0:7)	9:6 (-0:2)
Paloma Panama	Y2	YR02W	18/06/2011	9:4	10:2 (0:10)	10:5 (1:1)	10:4 (1:0)	9:8 (0:4)	9:11 (0:7)

This is the age, in years and months, of the student at the time of taking the CPI assessment module.

Here we will see the achieved age equivalence, years and months, in the component parts of the chosen CPI assessment module. In this example we are looking at the General Maths assessment module (Numbers, Algebra, Data Handling, Measure shape and space). The age equivalence is the average age related difficulty of questions the student was capable of answering during the module.
Also displayed is the age difference between the students chronological age and their achieved age equivalence.

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Individual Student Report – interpretation guidance

Mathematics

Abdul's score in the mathematics module puts them in the higher part of the average range. Around 34% of students would typically score between 100 and 115. The score is made up of sub-scores from different parts of the mathematics assessment, so they may show stronger mathematical skills in some parts of the assessment than in others.

Arithmetic

In the Arithmetic assessment, Abdul scored in the average ability range. Typically, 34% of students would be expected to score between 85 and 99.9. This represents the lower half of the average ability range. This section tests mental arithmetic and Abdul may find it more difficult doing questions mentally and might prefer to use physical objects such as counting lines or blocks to help them.

Developed Ability

Abdul's Developed Ability score is in the higher part of the average range. Approximately 34% of students would typically score between 100 and 115. The score is a measure of Picture Vocabulary and Non-verbal Skills, so Abdul is likely to be strong in both areas.

Reading

Abdul's score in the Reading assessment puts them in the higher part of the average range for reading. Around 34% of students score between 100 to 115. They may show stronger reading skills in parts of the assessment than in others.

Spelling

Abdul's score is in the higher part of the average range for spelling. Around 34% of students score between 100 and 115. Abdul's spelling ability will be good for their age.

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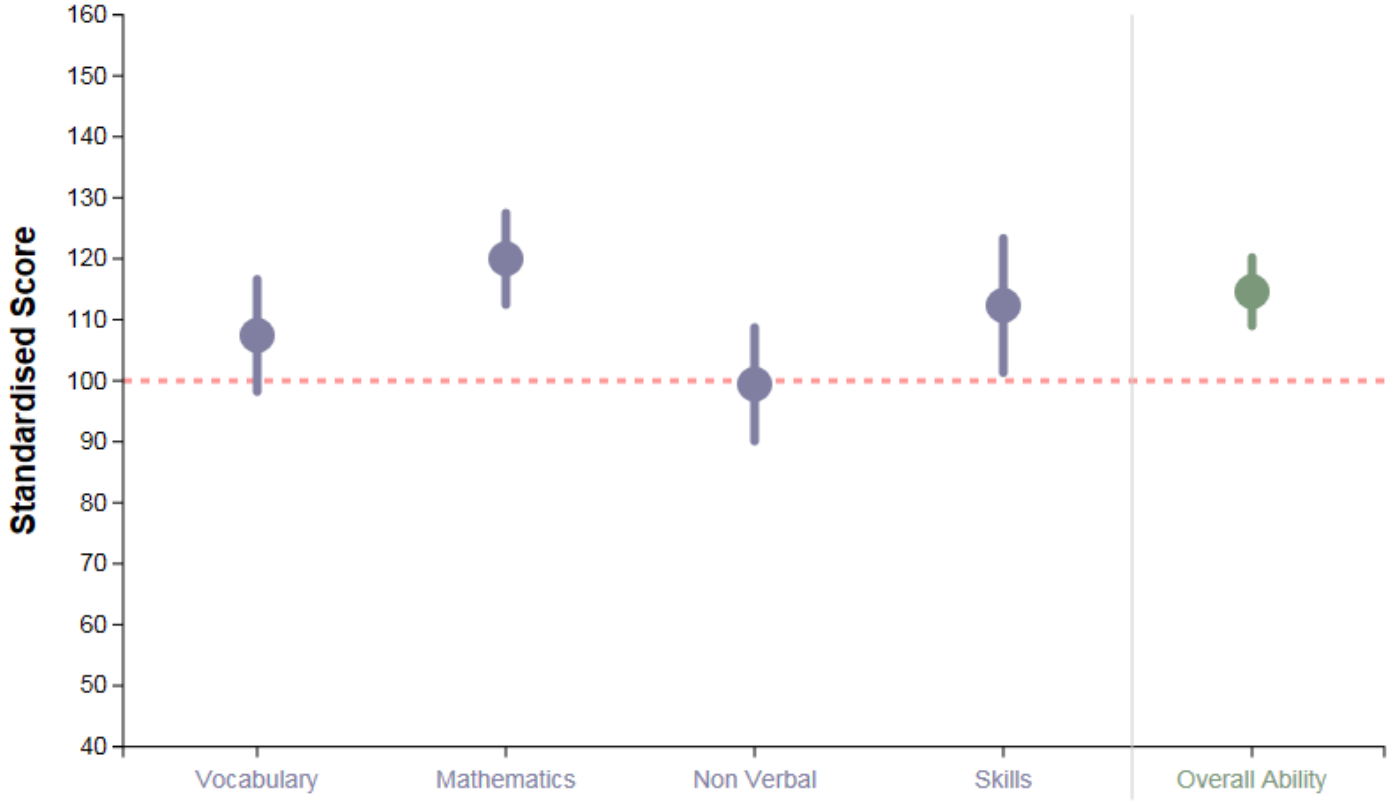
Individual Student Record

The IPR contains a student's scores in each section of the baseline assessment



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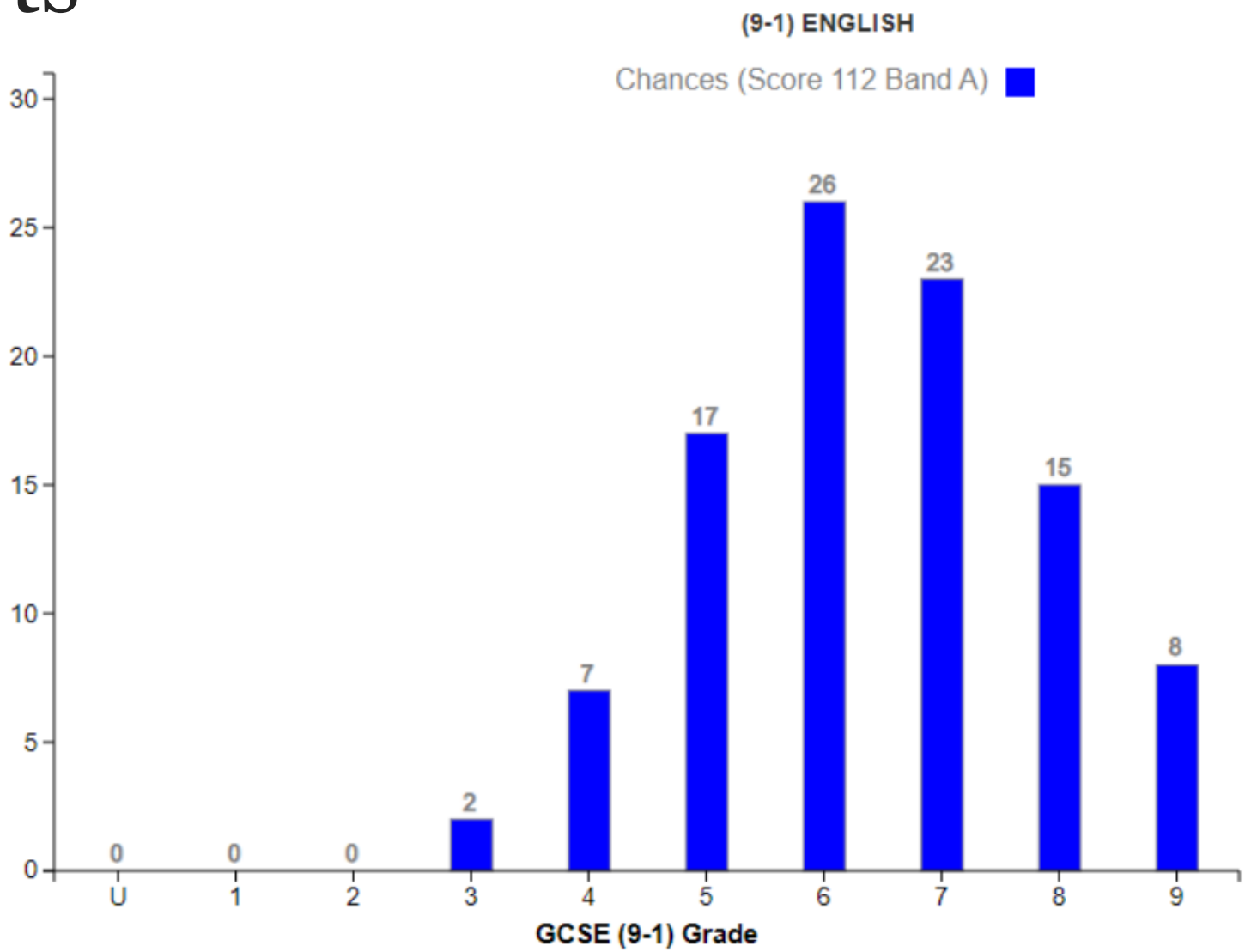
Predictions Reports

SECONDARY: SUBJECT CHANCES GRAPH

Secondary Subject Chances Graph showing the % probability of a student achieving all available subject grades



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What does ‘value-added’ help us with?

Have my students fulfilled their potential as indicated by their Insight baseline test performance?

Have subject departments achieved their potential grade distributions?

Have any subjects added more value to their students?

Have any subjects struggled?

Is there ‘best practice’ to be shared?

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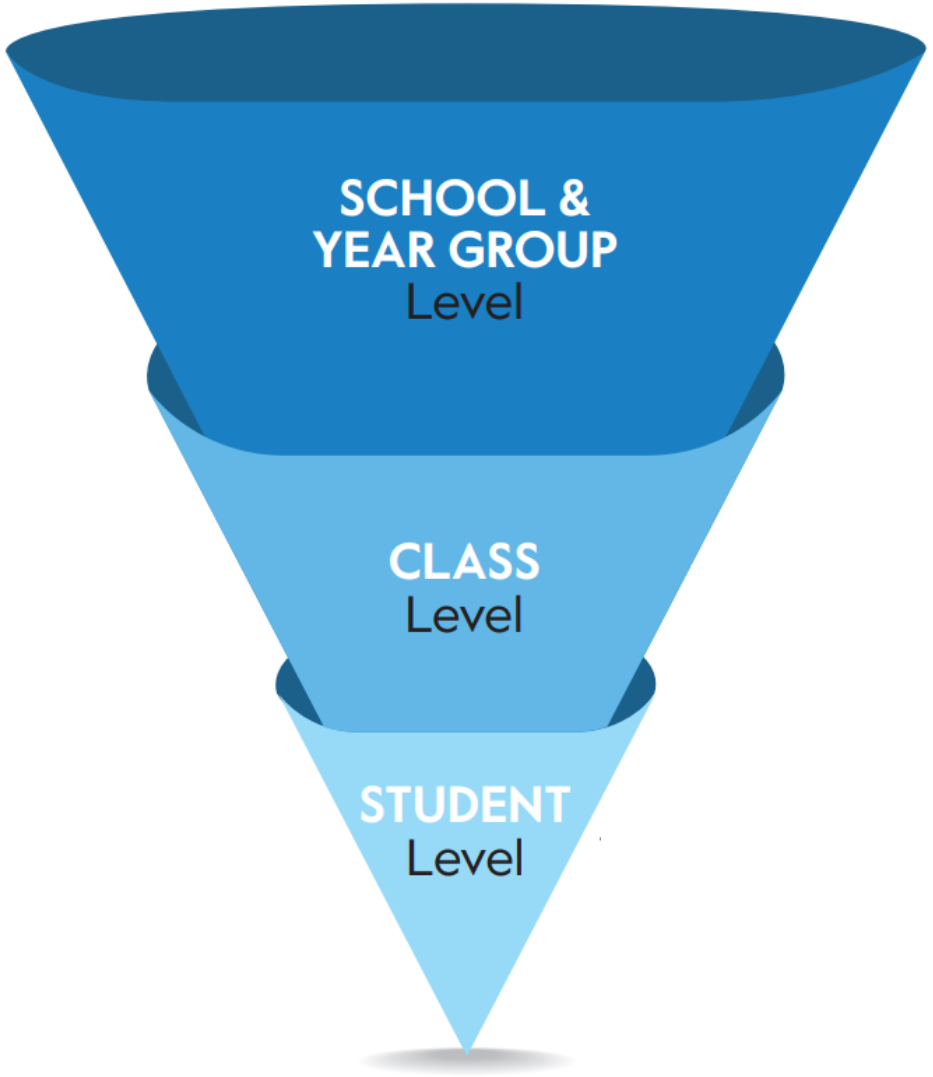
In summary: Why Schools choose Cambridge Insight assessments

Data insights for the whole school



- Quickly and easily gain insights and valuable data, from whole-school down to the individual student.
- Improve their students' learning experience, predict high stakes exams, help find their weaknesses and build them into strengths.
- View data over time and understand how performance is changing.
- Provide informed conversations with parents.
- Support international school curriculums and EAL learners.

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How is baseline conducted?

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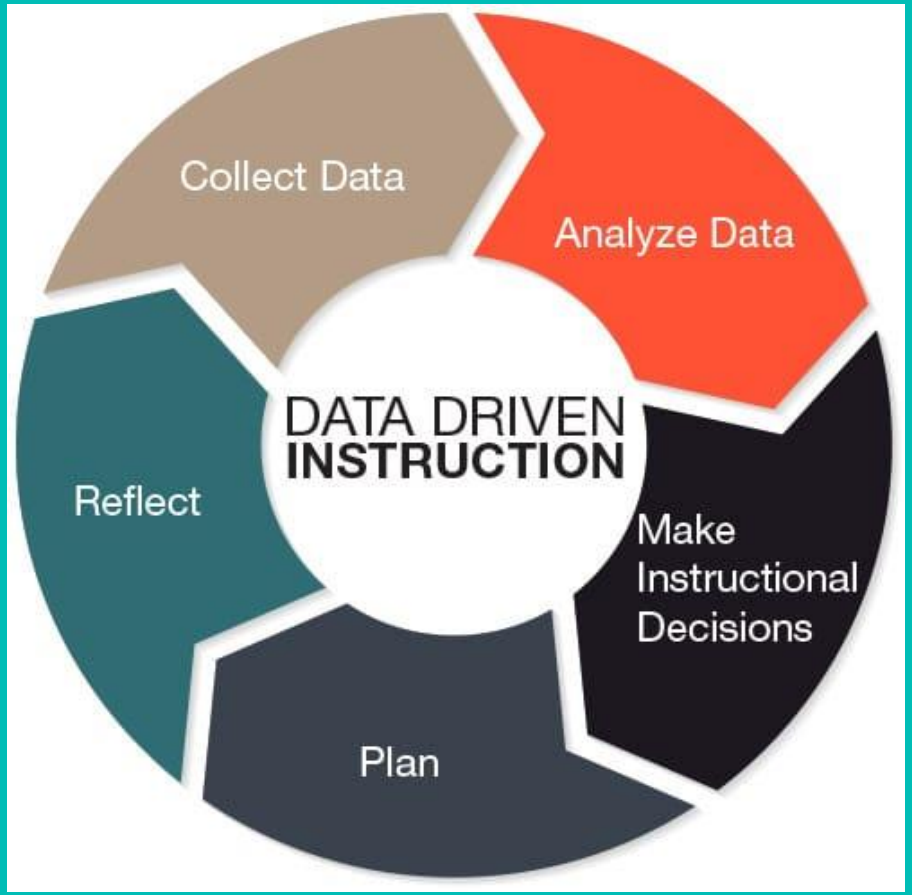
Asking the right questions

- What does this mean for my school?
- What does this look like for my school?
- Are my year group profiles similar?
- How can the insights be used to help advise students?
- What questions might teachers / parents / students ask?
- What shall we do next?



Adapted from DDI – 'Data Driven Instruction' from Richard Halverson and Jeffrey Grigg

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Data cycle in action

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Process & next steps

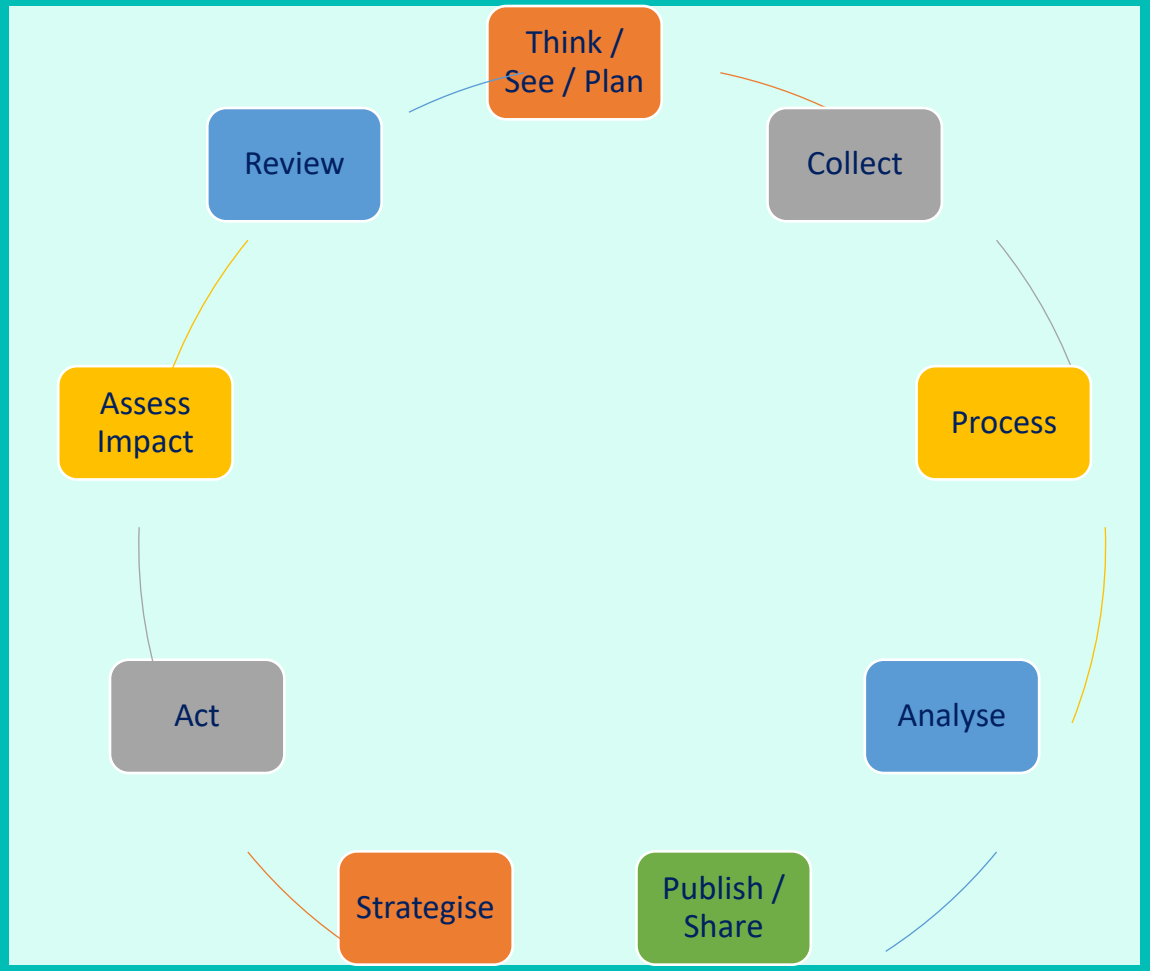
Process – where do we start?

Analyse – different ways to analyse data

Publish/Share – how and why we can do so

Strategise – Who and what?

Act – what are the next steps



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Types of data

- Assessment and academic
- Behavioural data
- Personal data
- Teacher and classroom practices
- Whole school performance
- Digital learning data

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Type of Data	Examples
Assessment & academic	Entrance/Placement (Baseline) Tests Any school assessments, mock tests or Cambridge tests Formative and Summative assessments
Behavioural data	Attendance and punctuality Rewards system Participation Personal Attributes
Personal data	Students home lives SEN
Teacher and classroom practices	Observation scores and notes Professional development
Whole school performance	National and International standards
Digital learning data	Adaptive/AI online assessments Online Platforms

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Different ways to analyse data

1
Descriptive & Comparative

What's happening?

How does it compare?

→

2
Trends & Predictive

How is it changing over time?

What will happen in the future?

→

3
Visual & Diagnostic

How can we show it clearly?

Why is it happening?

→

4
Qualitative & Prescriptive

What does it mean?

What should we do about it?

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Different ways to utilise analysed data

1
Descriptive & Comparative

Often classroom or year group specific.

Find any weak skills or topics.

Find any flaws in the assessment or procedures that impact results.

2
Trends & Predictive

Often an overview of general school or learner attainment.

Find improvements or declines over time or in a learner group.

Predict student or learner group future results.

3
Visual & Diagnostic

Often utilised to collaborate with others.

Present findings to others, class teachers or management team.

Allows teachers to understand results and share any ideas they have as to the reasons.

4
Qualitative & Prescriptive

Often used as a starting place for creating change.

Solidify feedback for each data set, where should teachers be focussing.

Discuss and create plans of action for the future.

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Decision making

1	2	3	4	5
International & national	**School wide**	**Year group**	**Class**	**Students**
Management team & Senior Management Team	**Management team & Senior Management Team**	**Class teacher(s), year head, programme leader**	**Class Teacher(s) & first manager**	**Class Teacher(s) & any SEN teacher(s)**

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Group work activity

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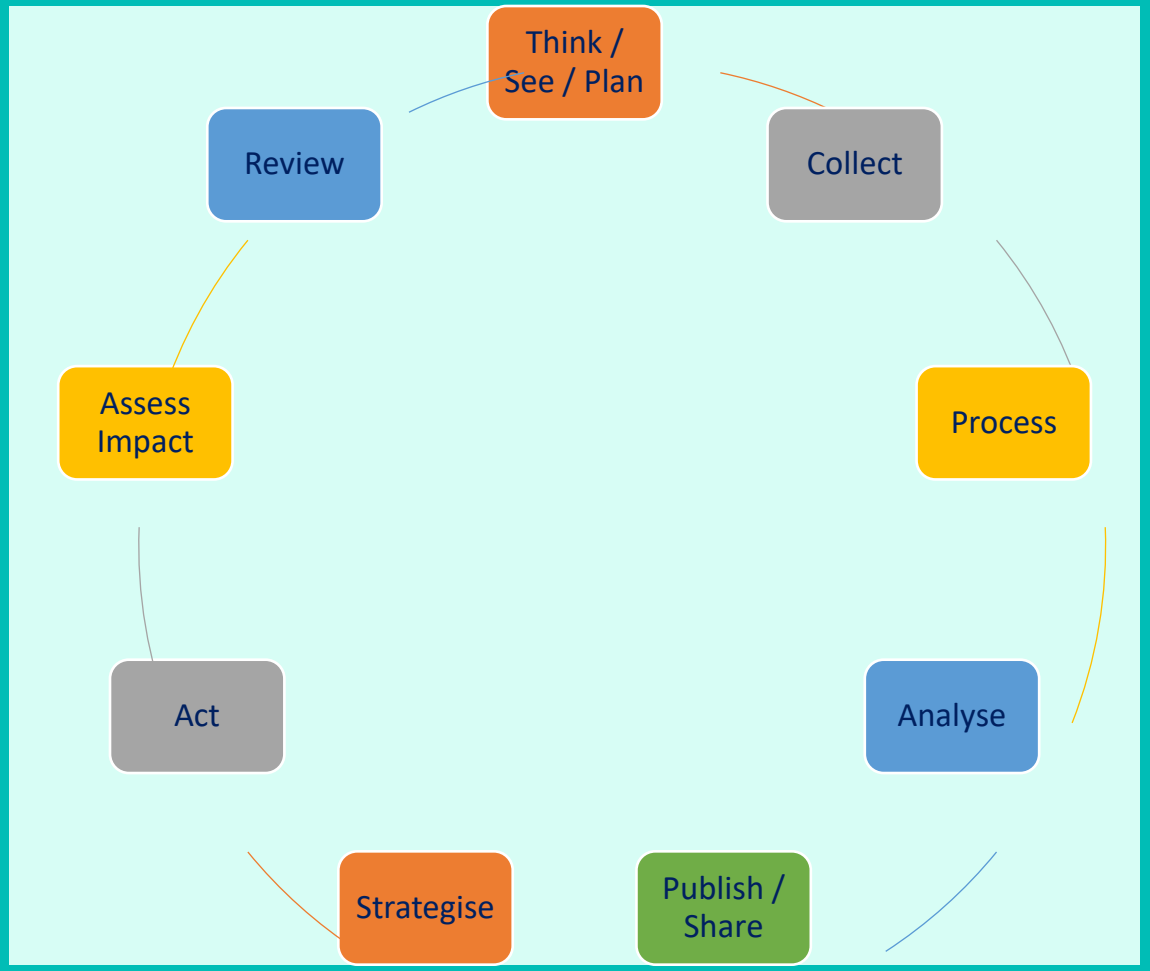
Activity – Reports and Strategy

- Which reports belong to which DDI and Why?
- Which part of the data cycle do you find the most difficult to manage?



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Activity

- Each group will receive a different data set
- We will focus on simple data sets

- You will create:
  - A rough line graph to show average results
  - A list of weak and strong strands or skills
  - A suggested plan for one weak area and who will be involved in this process
  - Suggested activities for re-assessment

- You have 8 minutes to work together.

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Example

Example: ESL

Student Name	Reading & Use of English		Listening		Writing	Total	Average	Rounded (5%)			
	34	%	20	%	35	%					
A	21	61.76%	5	25.00%	26	74.29%	53.68%	55%		50%	2
B	26	76.47%	9	45.00%	27	77.14%	66.20%	65%		55%	4
C	27	79.41%	12	60.00%	26	74.29%	71.23%	70%		60%	0
D	20	58.82%	5	25.00%	26	74.29%	52.70%	55%		65%	5
E	22	64.71%	4	20.00%	28	80.00%	54.90%	55%		70%	4
F	30	88.24%	7	35.00%	27	77.14%	66.79%	65%		75%	3
G	25	73.53%	9	45.00%	26	74.29%	64.27%	65%		80%	0
H	27	79.41%	10	50.00%	30	85.71%	71.71%	70%		85%	2
I	30	88.24%	11	55.00%	29	82.86%	75.36%	75%		90%	0
J	23	67.65%	7	35.00%	30	85.71%	62.79%	65%		95%	0
K	13	38.24%	5	25.00%	28	80.00%	47.75%	50%		100%	0
L	32	94.12%	13	65.00%	32	91.43%	83.52%	85%			20
M	18	52.94%	4	20.00%	26	74.29%	49.08%	50%			
N	31	91.18%	10	50.00%	27	77.14%	72.77%	75%			
O	28	82.35%	12	60.00%	28	80.00%	74.12%	75%			
P	33	97.06%	15	75.00%	27	77.14%	83.07%	85%			
Q	29	85.29%	4	20.00%	29	82.86%	62.72%	65%			
R	23	67.65%	7	35.00%	24	68.57%	57.07%	55%			
S	29	85.29%	8	40.00%	29	82.86%	69.38%	70%			
T	31	91.18%	7	35.00%	31	88.57%	71.58%	70%			

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Feedback

Feedback to the group.

- Show or discuss:
  - A rough graph of achievement
  - A list of weak and strong strands or skills
  - A suggested plan for one (or more) weak area and who will be involved in this process
  - Suggested activities for re-assessment

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Assess impact & review

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Assess impact

- Re-do assessments or observation
- Review results from any longer-term systems (like classroom management)
- Interviews
- Student self-assessment or feedback
- Create new full student profiles

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Review

- Assessment and academic
- Behavioural data
- Personal data
- Teacher and classroom practices
- Whole school performance
- Digital learning data

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Future of Cambridge Insight ☺

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Cambridge Insight – coming soon !

- Single sign on across multiple stages from Year 1-13
- New interactive reports – more descriptive to help school interpret report
- Teaching and Learning guidance – now live for Cambridge Primary Insight and soon for Secondary Insight
- Reduction in assessment language load – to match CEFR
  - Adaptive nature makes it more suitable for international learners
- New assessment looks and feel
- More new predictive subjects added for humanities.

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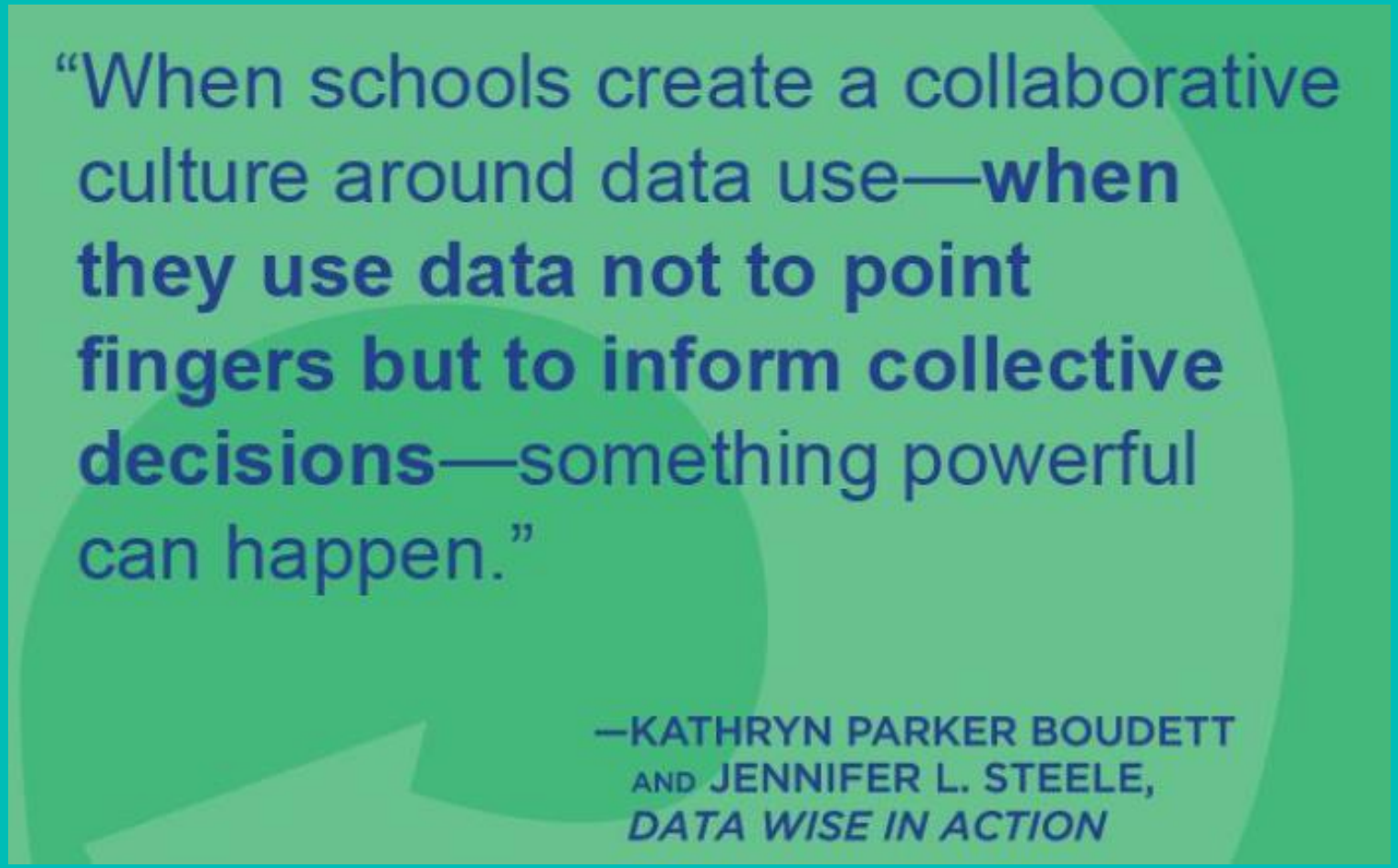
"When schools create a collaborative culture around data use—**when they use data not to point fingers but to inform collective decisions**—something powerful can happen."
—KATHRYN PARKER BOUDETT AND JENNIFER L. STEELE, *DATA WISE IN ACTION*

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‘Everything in life begins as potential and continues as progress with no retirement plan’

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“Feedback is key to better sessions”

https://forms.office.com/e/Ytd9McbaAt

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Any questions?

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Thank you!

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