

What makes an IB Maths Kognity Learner?

Kognity supports students in growing as empathetic peacemakers, who are rooted in international mindedness and have a commitment to respecting humanity and the environment. Use the tree below to explore how Kognity nurtures IB Maths learners in developing these skills.

IB Learner Profile Attributes with Kognity

Making connections

Think about how much you use data in your other Diploma courses. Among numerous other applications, you analyse:

- census information, demographics and economic data in the human sciences
- media ratings and sales data to determine what is popular in the arts
- experimental data and measurements in the natural sciences.

Investigations

Part 1

Describe the characteristics that all statements that can be proved by induction have in common.

Hence, create your own example of a statement that can be proved by induction. Explain how it fits with the characteristics that you described.

Share your work with a peer and see if they agree that your statement can be proved by induction.

Principled Learners...

Are dedicated to the study of Maths and are curious about linking the subject to real world application

Caring Learners...

Thinkers...

Investigate concepts in Maths and connect their understanding to the "big picture" in their discipline.

Risk-takers...

persevere through new challenges and show tenacity and innovation in the face of uncertainty while reflecting on their progress.

Reflective Learners...

Inquirers...

Knowledgeable Learners...

Balanced Learners...

are confident in their own ideas, and collaborate and listen to the ideas of others.

Communicators...

Open-minded Learners...

Concept

Throughout this subtopic you will be asked to convert numbers from the familiar decimal notation to a new, $a \times 10^b$, form of representation of these same numbers.

The purpose of this new form of representation is to facilitate your work with large and small numbers.

As you work through the subtopic, consider where the new form of representation adds to your understanding of numbers and where it would be more appropriate to use the ordinary number format with which you are currently more familiar.

Activity

Squares are drawn following the pattern shown in the diagram below. Diagram 1 shows a square of area 1 unit divided into four equal parts. The shaded area is $\frac{1}{4}$ units. In Diagram 2 the original square is divided into 16 equal parts, and the total shaded area is $\frac{5}{16}$ units. This pattern continues as shown in Diagrams 3 and 4.

If this process is continued for ever, find the total area for an infinite number of shaded boxes.

Discuss what it means to have an infinite number of shaded boxes in this context.

Approaches to Teaching and Learning with Kognity

Table 1: Mathematics exploration assessment criteria

Criterion	Available Marks
A: Presentation	4
B: Mathematical communication	4
C: Personal engagement	3
D: Reflection	3
E: Use of mathematics (SL)	6
E: Use of mathematics (HL)	
TOTAL	20

Explore what happens to the perimeter and the area of the newflake as the process is continued indefinitely.

Research

Students are guided through the importance of academic honesty as well as how to access reliable external resources to do a deep dive into topics or gather sources for the Internal Assessment.

Social

TOK boxes embedded in the text as well as interactive applets and other visual resources provide great opportunities for students to collaborate and reflect on the subject matter together.

Thinking

The "TOK" boxes included in the textbook are excellent ways for students to reflect on their learning, while exam-style practice questions allow students to use critical thinking skills to apply their learning to unfamiliar situations.

Communication

Kognity provides many different ways for students to build communication skills through the digital platform, focusing on streamlined feedback, intercultural communication and peer interaction.

Self-Management: Organization

Students can develop time management and organization skills by keeping track of their progress and mastery of different topics through their strength bar, and keep up to date with assignments on their homepage.

1.1 Scientific notation

Sections Completed: 2 / 2

Strength: [Progress bar]

- 1.1.0 The big picture
- 1.1.1 Writing a number in scientific notation
- 1.1.2 Multiplication and division
- 1.1.3 Addition and subtraction
- 1.1.4 Powers
- 1.1.5 Checklist
- 1.1.6 Investigation

Take Strength test Previous subtopic Next subtopic

Strength battle

Battle an opponent, or view your current and past battles.

Create new battle

1. Pick an opponent

Battle the Kogbot

Battle a classmate

-- Choose a classmate --

- Kyla Alvarez
- Johan Bernadotte
- James Denkin
- Melissa Gilbert
- Marcus James
- Lester Nygaard
- Ruchi Patil
- Isobel Reyes
- Nicholas Straus

Strength battle

Theory of Knowledge

The writer Mark Twain popularised the phrase 'There are three kinds of lies: lies, damned lies, and statistics.' Statistics are powerful in that they can turn quantitative numbers into qualitative understanding. However, as pointed out by Twain and in the video below, they can also mislead. It is important to be precise in the scope and application of statistics.

This leads to a knowledge question, 'Given that statistics can provide multiple truths depending on numbers and analysis selected, is a singular truth possible or is all truth a matter of the knower's perspective?'

Watch on YouTube