

# Program Principles

- All students need opportunities to learn mathematics in ways that are meaningful to them. A responsible mathematics program recognizes many learning styles and offers guidance to teachers as they plan for individual student differences.
- Teacher understanding of mathematics is a critical factor in their students' success. Teacher understanding can and must be supported in program methodology and pedagogy.
- Students best develop conceptual mathematical understanding when they have opportunities to “do” math, to engage in hands-on experiences in which they explore concepts in a rich mathematical context.
- Students demonstrate conceptual understanding by communicating and modeling their reasoning, and connecting a new concept or strategy to other contexts they have seen before.
- Problem solving is an integral part of learning mathematics. Students best learn new mathematical concepts when they pose and solve problems.
- Mathematics understanding is deepened and enhanced when students have opportunities to make connections between mathematical concepts and other mathematics strands, other disciplines, and the real world.




- Procedural fluency with number is an essential skills for life. Both mental and written computational strategies must be accurate, efficient, flexible, and adaptable.
- Parents have a significant role to play in student learning, in supporting and reinforcing what is learned in the classroom each day, and promoting a positive attitude toward mathematics in the home.
- The purposeful use of technology in the mathematics classroom can enrich learning experiences for students, allowing them to explore and develop concepts, and extend critical thinking and problem-solving skills.
- A mathematics program should support curriculum implementation and assessment with 100% curriculum fit and practical teacher support – pacing guidelines; combined grades strategies; models for independent and group learning; performance-based assessment suggestions.
- Teachers need a balance of diagnostic, formative and summative assessment opportunities, with practical assessment tools to track student achievement and meet reporting requirements.

**Cross Strand Investigation**


### It's All in the Can!

You will need a variety of tin cans with labels and a centimetre measuring tape.



**Part 1**

- Choose six cans. Label the cans with the letters from A to F. For each can, predict which measurement will be greater: the height of the can, or the distance around the can. Record your predictions.
- Measure the height and the distance around each can. Record the measurements to the nearest centimetre. Were your predictions correct?



**Part 2**

- For each can, find the difference of the distance around the can and its height. Subtract the lesser number from the greater number. Record the measurements and the differences in a table.

Can	Description	Height	Distance Around	Difference
A	Sprangorthi Beans	18 cm	28 cm	$28 - 18 = 10$
B	Saltion	5 cm	25 cm	$25 - 5 = 20$

**Part 2**

- Arrange the cans in order from the can that has the least difference of the two measurements to the can with the greatest difference.
- Describe any patterns in the shapes of the cans.
- Choose three different cans. Predict their order from the can with the least difference of the two measurements to the can with the greatest difference.
- Measure the cans to check your prediction.

**Display Your Work**  
Report your findings using words, pictures, or numbers.

**Take It Further**  
Think of other ways you can sort the cans. Arrange the cans in order from greatest to least. Write about your sorting.

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