The Maths Block



We teach mathematics based on the curriculum.

So that our students can be become 'numerate' and can use and apply their understanding.

Integrate (cross - curricular)

Real world

Concrete - Representational - Abstract

Instructional approach to maths

- enhances student performances
- promotes student learning & retention of conceptual knowledge

Stepping Stones

ORIGO Stepping Stones balances the dimensions of rigor in a number of ways by:

- Developing conceptual understanding using a range of powerful visual models
- Creating rich opportunities for classroom discourse and language development
- Fostering thinking skills and procedural fluency
- Providing opportunities to apply learning across real problems,
 open investigations, and enrichment activities

 Offering multiple methods to assess deep understanding, fluency of skills, and applications of mathematics

ORIGO STEPPENSIVE MATHEMATICS

YEAR F - YEAR 6

Structure

Warm up
Explicit instruction (I do)
Guided practice (We do)
Independent practice (You do)
Plenary / review

Kindy - Year Two 60 minutes per day

Year Three - Year Six 90 minutes per day

Warm Up K - 2

- Basic facts
 - addition and subtraction
 - telling the time milestones

Daily review - previously taught content related to current concept

• Problem of the day

- one step problem using the strategies: Look for key information, act it out, draw a picture, make a model, write a number sentence

Warm Up 3 - 6

- Basic facts

 - multiplication and division
 telling the time milestones (Year 3)
- Daily review previously taught content related to current concept
- Problem of the day

- one, two and multi-step problems using the additional strategies of: use a number line, make a table, simplify the problem, find a pattern, work backwards

Why is it important to be a great problem solver?

- Problem solving develops mathematical power. It gives students the tools to apply their mathematical knowledge to solve hypothetical and real world problems. Problem solving is enjoyable. It allows students to work at their own pace and make decisions about the way they explore the problem.
- A problem is something you do not immediately know how to solve.

Draw a table

A table helps to organise the information so that it can be easily understood and relationships between numbers become clear. Drawing up a table helps to:

- Show a pattern in the information
- Reduce the possibility of mistakes or repetitions
- See what information we know from the problem and what information is missing

Boys Girls Total 12 5 10 24 14 28 20 48 40 96 56 80 192 112 160 224 384 320 768











Act it out

Sometimes problems involve characters and objects moving around a lot. Acting it out can make these movements become less confusing and easier to see. You can act it out by:

• Using people to represent the characters or objects in the problem



Some examples of

our problem

solving posters you

will see up in all

classrooms.

Problem Solving Strategy Number 2



Problem Solving Strategy Number 8

Problem Solving



Problem of the day examples



Kaz ran 5km on Monday, 10km on Tuesday and 3km on Wednesday. How far did she run altogether?



I Do - Explicit Instruction

- Share the learning intention and success criteria
- Make links to prior knowledge, previous learning
- Model
- Think aloud
- Explain
- Introduce/revise vocabulary (add to word wall)





We Do - Guided Practice

- Hands on-guided practice
- Guided application
- Check for understanding
- Remodel as required
- Informal assessment through observation and discussion





You Do - Independent Practice

- Application of concept through independent, differentiated activities including: Games (e.g. Paul Swan games, First steps activities, iPad apps or Stepping stones Fundamentals), hands on practice, problem solving.
- Guided support for individuals and groups.

Plenary / Review

 Revisit learning intention and success criteria

- Review and reflect on learning
- Check for understanding

Helping Your Child At Home

- Family participation in learning is one of the most accurate predictors of a child's success in school and beyond.
- Providing opportunities to discuss and engage in mathematics supports your child's learning in and out of school. Your child will also begin to connect the importance of maths with their everyday activities, such as navigating public transport, comparing and choosing the best item to buy in stores, setting a budget, and cooking.

Helping Your Child At Home

- Card games
- Shopping
- Skip counting
- Times tables
- Dice games



Fluency practice as opposed to teaching any new concepts.

Exploring sports

Sports provide a good opportunity to engage your child in maths, particularly if they are a keen sportsperson.

Here are some questions to ask your child when watching or playing their favourite sport:

- » How does your favourite sport tally the score? What maths is presented on the tally?
- » How do other sports tally the score for example, tennis, golf, cricket, netball, football?
- » What maths do you use to find the total of the scores?
- » Who is at the top of the ladder? How is this determined?
- » Are there other ways to record the score?
- » How long do your favourite sport games go for in minutes and seconds? How is the time in the game divided? Into halves, quarters or something else?
- » What are the shapes of different playing fields and courts? Talk about edges and angles.
- » How can you estimate the perimeter and area of a playing field?
- » How many cars could be parked on the MCG field? How could we work this out?

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Sharing recipes

Discussing maths when cooking can provide a daily maths lesson involving measurement, time, and cost.

Here are some activities you could try at home:

- » Collect and read recipes and discuss the use of fractions, millilitres and grams. Encourage your child to make accurate measurements using measuring cups and spoons.
- » Discuss how you would double or halve a recipe. Encourage your child to record new measurements for the recipe. Discuss why and when you might need to do this.
- Identify the temperature and cooking time on the recipe.
 Discuss why different recipes have different temperatures and cooking times.
- » Estimate the cost to buy all the ingredients to make the recipe. Compare this with the actual cost of items. Ask your child if they think it was cheaper to buy the ingredients and make dinner or get takeaway.
- » Make a list of the abbreviations used in the recipe and then write them in full – for example, L for litre, ml for millilitre, tsp. for teaspoon, tbsp. for tablespoon.
- » Investigate the prices of fresh fruit and vegetables available in the supermarkets compared with market vendors.

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Handling money

Encouraging your child to think about money, saving money, and considering how they spend money is very important.

Here are some tips and activities:

- » Encourage your child to work out how much change you will get after buying something.
- » Investigate costs for family trips together. For example, a visit to a theme park may include the cost of transport, entry tickets, food and transport.
- » Discuss saving money for presents or something your child may want to buy. Work out how long it will take to save this much if they get a small amount of money each week.
- » Negotiate increases in pocket money as percentages. For example, a 5% increase would be how much money per week? Is this better than a monthly increase?
- » Encourage your child to save a percentage of their pocket money or birthday money and work out how much this would be. For example, how much money would you have if you saved 40% each week?
- » Calculate together how much a mobile phone costs per month. What percentage of total cost is spent on messages and what percentage on phone calls?
- » Read the newspaper or watch the news. Discuss what is happening with the stock market and why these changes may occur.

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Travel timetables

Here are some questions to ask your child that improve their knowledge of time and their problem solving skills:

- » Can you identify your starting point on the timetable?
- » What is the earliest and latest time to travel on this route?
- » How long does it take to travel the entire route?
- » How many stops are there on this route?
- » What is the difference in the time travelled when not making all the stops?
- » What is the cost? Is it good value compared to other travel options?
- » Which is the best route to travel? Why do you think this?
- » To get to training on time, when will you need to leave?

Questions?