

Focus: Problem Solving

Unit Length: 8 lessons

AusVELS:

Students develop the ability to make choices, interpret, formulate, model and investigate problem situations, and communicate solutions effectively. Students formulate and solve problems when they use mathematics to represent unfamiliar or meaningful situations, when they design investigations and plan their approaches, when they apply their existing strategies to seek solutions, and when they verify that their answers are reasonable.

Vocabulary Development:

“Zone of Confusion”
Specific strategies to teach:

Other Resources:

Problem Solving Books-Peter Maher, Solve that Problem

Teaching and Learning Sequence:

Session	Student Learning Activity (including introduction)	Enabling Prompt	Extension Problem	Content link/Strategy Focus
1	<p>Max's Matchsticks: Max and Hunter were asked to work out how many matchsticks were needed to make 10 adjoining squares without counting each one.</p> <p>If each student used a different strategy to solve the answer, how might each of them have solved it?</p>	<p>How many matchsticks would Olivia need if she was asked to make 5 adjoining squares? Can you record your answer using another strategy?</p>	<p>Max, Hunter, Salma and Celeste decided to work out how many matchsticks were needed to make 27 adjoining squares without counting each one.</p> <p>If each student used a different strategy to solve the answer, how might each of them have solved it?</p>	CHALLENGING
2	<p>Aspiring Artists: Sue and Claudia organised a visual art competition and 130 students from MPW took part. There were 40 fewer boys than girls who participated. How many boys took part in the art competition?</p>	<p>Sue and Claudia organised a visual art competition and 50 students from MPW took part. There were 10 fewer boys than girls who participated. How many boys took part in the art competition?</p>	<p>9 out of 11 students worked with Sue during the visual art competition. The other students worked with Claudia. If Sue had 49 more kids than Claudia, how many kids did Sue have in her group?</p>	BAR METHOD
3	<p>Fruit Fiasco: Emma had 3 peach and 3 plum trees in her garden. For every 8 ripe peaches she picked, she picked 3 ripe plums. When the trees were bare she had 64 peaches. How many pieces of fruit did she collect altogether?</p>	<p>Emma had an apple and a banana tree in her garden. For every 2 ripe apples she picked, she picked 5 ripe bananas. When the trees were bare she had 25 bananas. How many apples did she have?</p>	<p>Emma had an apple, banana, apricot and pear tree. For every 9 pears she picked, she picked 7 apricots and 3 apples. And for every 2 apples she picked, she picked 6 bananas. After an hour picked 72 bananas. How many pieces of fruit did she pick altogether?</p>	MULTIPLICATION

<p>4</p>	<p><u>Painstaking Pack up:</u> At the end of the day in Room 16, it took 33 minutes to pack up. It took Oli 5 more minutes than Daniel to pack up. How many minutes did Daniel spend packing up the room?</p>	<p>At the end of the day in Room 16, it took 17 minutes to pack up. It took Oli 5 more minutes than Daniel to pack up. How many minutes did Daniel spend packing up the room?</p>	<p>Over the week, room 16 spend 87.5 minutes packing up. Hanan wasted 5 minutes each day talking to Ruby. If Lily spent $\frac{3}{4}$ of a minute more time packing up each day than Hanan, how much time did Lily spend packing up at the end of the week?</p>	<p>BAR METHOD</p>
<p>5</p>	<p><u>Soccer Scrub:</u> Jack took 2hrs 30 min to clean 5 pairs of football boots. If he started at 9:00 am, what time will he finish cleaning 15 pairs of football boots?</p>	<p>Jack took 1hr to clean 4 pairs of football boots. How long did it take him to clean one pair of boots?</p>	<p>Cooper took 2 h 30 min to clean 15 dirty soccer jerseys. Daemon took 1 hour less to clean the same number of jerseys. If they need to clean 30 jerseys, how much longer will Cooper take than Daemon?</p>	<p>TIME</p>
<p>6</p>	<p><u>Class Conundrum:</u> There are 557 students enrolled at MPW. If there are 37 more girls than boys, how many boys are there?</p>	<p>There are 48 students in the Room 21 and 22 portables. If there are 6 more girls than boys, how many boys are there?</p>	<p>Of the 557 students at MPW, there are three times as many kids with female classroom teacher/s as there are ones with a male classroom teacher, while 49 students have both a male and a female as their classroom teacher (e.g. Michael and Carley grade sharing). How many children at MPW have only female/s as their classroom teachers?</p>	<p>BAR METHOD</p>
<p>7</p>	<p><u>Fidget Fun:</u> Carley collected all of the fidget spinners from the students in Room 19. When she counted up all of the arms on the fidget spinners she discovered there were 72. How many fidget spinners did Carley have and how many arms did they have? (eg. 3 arms, 2 arms etc)</p>	<p>Carley collected all of the fidget spinners from the students in Room 19. When she counted up all of the arms on the fidget spinners she discovered there were 12. How many 3 armed fidget spinners did Carley have?</p>	<p>Jack's fidget spinner spun at a rate of 25,200 spins per hour. If Jack was to spin his fidget spinner for 18 seconds, how many rotations would his spinner make?</p>	<p>OPEN ENDED</p>

<p>8</p>	<p>Fidget Filch: With the recent fidget spinner craze hitting MPW, Jeff started a collection. On Monday, he collected 50 fidget spinners. Each day after that Jeff collected 6 more than the day before. How many fidget spinners had Jeff collected by the end of the week?</p>	<p>In Room 16, Liz collected 6 fidget spinners on Monday. She continued to collect 2 fidget spinners each day. How many fidget spinners did Liz have at the end of the week?</p>	<p>Jeff counted the number of fidget spinners he collected from 10.50am to 1.55pm. If for each hour, Jeff took an 18min break, how long did he actually spend counting fidget spinners?</p>	<p>BAR METHOD</p>
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