RICH MATHEMATICAL TASK BOOKLET

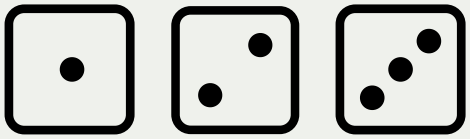
NUMBER & ALGEBRA

YEAR 0

Teacher Booklet

Task 1

Sam and Jade are making dice to play snakes and ladders.
This is the pattern they used for the first three numbers:



What is the same and different about the patterns?
Which pattern is easiest to recognise?
Can you create the dot patterns for 4, then 5, then 6?

Teacher Notes

Provide students with counters or stickers and other materials but also ask them to draw to represent each pattern they have created.

Provide coloured markers for students to draw groupings.

Notice their representations. Consider, are their drawings structured so that the groups are clear and easy to see? Are they showing an understanding of groupings within their representations?

Shareback

Select students who have used different forms of structured grouping.

Record their representations and the number symbol.

Ask the students to practice copying the different groupings and record the matching number symbol

Connect

Can you create a dot pattern for 8?

Highlight how 8 can be represented and counted as 4 twos or 2 fours. Represent this in a variety of ways and make connections between different forms of representation: materials → drawing → numbers → equations.

Big Ideas

Quantity is an attribute of a set of objects and we use numbers (represented by words and symbols) to name specific quantities.

A quantity (whole) can be decomposed into different parts, the parts can be composed to form the whole.

Curriculum Links

During Year 1

Subitise (recognise without counting) the number of objects in a collection of up to 10

Identify, read, and write whole numbers up to at least 10

Compare and order whole numbers up to at least 10 and ordinal numbers (e.g., 1st, 2nd, 3rd), using words

Suggested Learning Outcomes

Make and identify groupings for numbers from 0-10.

Represent, explain, and justify number groupings between 0-10 using pictures, numbers, and words.

Independent Tasks

Mere and Ana are playing with acorns and using them to make dice patterns for the numbers 1 to 8.

What are some of the patterns they make?

Can you draw the pattern and write the numbers to match?

Can you write a number sentence to represent it?

Mathematical Language

Number words (e.g., one, two, three...).

Anticipations

Solutions, Misconceptions

Task 2 (Whole class option)

Fau and Mepa are inventing a game to play at home. They want to make a dice that has dot patterns for the numbers 7 to 10 on it.

Can you create the dot patterns for dice for 7, 8, 9, 10? How many different patterns can you create?

Teacher Notes

Provide students with counters or stickers and other materials but also ask them to draw to represent each pattern they have created.

Provide coloured markers for students to draw groupings.

Notice their representations. Consider, are their drawings structured so that the groups are clear and easy to see? Are they showing an understanding of groupings within their representations?

Shareback

Select students who have used different forms of structured grouping.

Record their representations and the number symbol.

Ask the students to practice copying the different groupings and record the matching number symbol

Connect

Can you create a dot pattern for 12?

Highlight how 12 can be represented and counted using groupings - six 2s, two 6s, three 4s, 10 and 2 etc. Represent this in a variety of ways and make connections between materials → drawing → numbers → equations.

Big Ideas

Quantity is an attribute of a set of objects and we use numbers (represented by words and symbols) to name specific quantities.

A quantity (whole) can be decomposed into different parts, the parts can be composed to form the whole.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 10 objects by grouping and counting

Subitise (recognise without counting) the number of objects in a collection of up to 10

Identify, read, and write whole numbers up to at least 10

Suggested Learning Outcomes

Make and identify groupings for numbers from 0-10.

Represent, explain, and justify number groupings between 0-10 using pictures, numbers, and words.

Independent Tasks

Mary and Sima are playing with pinecones and using them to make dice patterns for the numbers 4 to 12.

What are some of the patterns they make?

Can you draw the pattern and write the numbers to match?

Can you write a number sentence to represent it?

Mathematical Language

Number words (e.g., one, two, three...).

Anticipations

Solutions, Misconceptions

Task 3

John has a set of marbles. He wants to know how many marbles he has. Can you help him find out how many marbles he has?

What is the quickest way John can count the marbles?

Levi has a set of marbles, and he wants to know how many marbles he has. Can you help him find out how many marbles he has?

What is the quickest way Levi can count the marbles?

Teacher Notes

Have sets of marbles or change this to objects relevant to your students. For the first task, give the students a set of 10 marbles. For the second problem, give the students a set of 14 marbles.

While students are finding out how many marbles are in the set, note the students who count in twos or use groups. Highlight this reasoning during share back.

Students should represent how they counted by drawing and/or writing numbers.

The key focus is to move students beyond one-to-one counting.

For the independent task, use round counters to represent the stickers. Have bags of counters with between 12 – 20 counters for the students to choose.

Shareback

For first task with ten marbles, select any students who are counting in twos or using groups to share their reasoning. If all students are using one to one counting, then model counting in twos and record this on the board as two dots and write the number 2 underneath and then another two dots and the number 4. The focus is to move students beyond one to one counting.

Repeat this for the second task with 14 marbles.

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Quantity is an attribute of a set of objects and we use numbers (represented by words and symbols) to name specific quantities.

A quantity (whole) can be decomposed into different parts, the parts can be composed to form the whole.

Curriculum Links

During Year 1

Partition and regroup up to 20 objects in different ways, using a systematic approach and noticing patterns Identify, read, and write whole numbers up to at least 10

Identify, read, and write whole numbers up to at least 20, and represent them using the tens-and-ones structure of teen (11-19)

Count forwards or backwards from any whole number between 1 and 10, and then between 1 and 20

Connect

Who has more marbles, John or Levi? Can you explain and prove your answer?

Suggested Learning Outcomes

Count in groups.

Represent and explain reasoning using pictures, numbers, and words.

Compare two sets.

Independent Tasks

Liana has some stickers. She wants to know how many stickers she has. Can you help her count the stickers?

Can you arrange the stickers into an easy way to count them? Now make sure that you draw your pattern and write the numbers to match.

Mathematical Language

Number words (e.g., one, two, three...).

Anticipations

Solutions, Misconceptions

Task 4

Hala has collected some leaves. She wants to know how many leaves she has. Can you help her work out how many leaves she has?

What is the quickest way Hala can count the leaves?

Can you find a different way to count the leaves using groups?

Teacher Notes

Make links to yesterday's task as part of the launch. Remind children that they can count in different ways.

Have a set of 20 leaves or change this to an object relevant to your students.

Move beyond 1-1 counting and focus on counting in groups.

Notice students who use groups of 4, 5, or 10 and support them to write the numbers under the set. Select these students to share back.

Children represent how they counted by drawing or writing numbers or equations.

For the independent task, use round counters or pictures to represent the cicada shells. Have bags ready with between 12 – 20 counters for the students to choose.

Shareback

Select any students who are counting in twos or using groups to share their reasoning. If all students are using one to one counting, then model counting in twos and record this on the board as two dots and write the number 2 underneath and then another two dots and the number 4. The focus is to move students beyond one to one counting.

Select students who used different forms of structured grouping (4, 5, 10) to share their solution. Have children practice copying these different groupings and recording the number symbol alongside them.

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Quantity is an attribute of a set of objects and we use numbers (represented by words and symbols) to name specific quantities.

A quantity (whole) can be decomposed into different parts, the parts can be composed to form the whole.

Curriculum Links

During Year 1

Partition and regroup up to 20 objects in different ways, using a systematic approach and noticing patterns Identify, read, and write whole numbers up to at least 10

Identify, read, and write whole numbers up to at least 20, and represent them using the tens-and-ones structure of teen (11-19)

Count forwards or backwards from any whole number between 1 and 10, and then between 1 and 20

Connect

Either choose the set number/s which children did not use e.g., 2s, 4, 5, 10 and ask them to group the set into those numbers OR if all set numbers were shared back then give students 16 leaves and ask them to arrange into groups to count quickly.

Show how this can be represented, and make connections between different forms of representation: materials → drawing → numbers → equations.

Suggested Learning Outcomes

Make and identify groupings for numbers from 0-10.

Represent, explain, and justify number groupings between 0-10 using pictures, numbers, and words.

Independent Tasks

Liana has been collecting cicada shells. She wants to know how many cicada shells she has. Can you help her count them?

Can you arrange the cicada shells in different ways to find out how many of them she has?

Make sure that you show the groups that you used and write the numbers to match them.

Mathematical Language

Number words (e.g., one, two, three...).

Anticipations

Solutions, Misconceptions

Task 5

Tupou has 10 tipani for two baskets. What are the different ways that she could put the tipani into the baskets?

Can you record your ideas using drawings and number sentences?

Teacher Notes

Have sets of tipani or materials to represent them or change this to an object/ context relevant to your students.

Notice students using patterns to find the different combinations and highlight this during sharing back.

Expect students to represent using counting and by writing numbers. Note those who used structured and clear representations.

Discuss and show with materials the commutative property (4 + 6 = 6 + 4)

Shareback

Select students who have used patterns to find different possibilities to share their solution strategies.

Record these using both pictorial representations (tens frames and equations).

Big Ideas

Quantity is an attribute of a set of objects and we use numbers (represented by words and symbols) to name specific quantities.

A quantity (whole) can be decomposed into different parts, the parts can be composed to form the whole.

Equations show relationships of equality between parts on either side of the equal sign. The properties of equality are: If the same real number is added or subtracted to both sides of an equation, equality is maintained; If both sides of an equation are multiplied or divided by the same real number (not dividing by 0), equality is maintained; Two quantities equal to the same third quantity are equal to each other.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 10 objects by grouping and counting

Identify, read, and write whole numbers up to at least 10

Partition up to 10 objects, using a systematic approach and noticing patterns

Connect

Select a student who has developed a systematic way to find all possibilities and ask other students to use that way to find all the possibilities for 14 pinecones. Otherwise use the following example...

Tupou has worked out a way to find all the different combinations. She begins by putting 10 tipani in one basket and none in the other.

(Record as ten counters and nothing and 10 + 0 = 10)

Then she knows that the next one will be 9 tipani in one basket and one tipani in the other basket.

(Record as 9 counters and 1 counter and 9 + 1 = 10)

Can you use Tupou's idea to find all the different combinations?
What patterns do you notice?

Suggested Learning Outcomes

Group objects to 10 in different ways.

Use patterns and relationships to solve problems.

Represent and explain reasoning using pictures, numbers and words.

Independent Tasks

Jenna has 12 grapes and two bowls.

What are all the different ways that she could put the grapes into the bowls?

Record your ideas using drawings and number sentences.

Mathematical Language

Number words (e.g., one, two, three...).

Anticipations

Solutions, Misconceptions

Task 6

Seini was collecting some flowers. She picked 3 red flowers and 3 yellow flowers. How many flowers did she pick altogether?

Sepi was collecting some flowers. She picked 4 orange flowers and 3 white flowers. How many flowers did she pick altogether?

Tiana was collecting some flowers. She picked 4 blue flowers and 5 yellow flowers. How many flowers did she pick altogether?

Teacher Notes

Introduce each problem one at a time and given students an opportunity to solve it and share back before introducing the next problem.

Have concrete material available if needed for students to select (e.g., tens frames, counters).

Expect to students to draw/record their number sentences. Model this if needed.

Notice if students see patterns in each set of problems.

Shareback

Select students who use their knowledge of doubles or counting on to share their reasoning. If all students count all, then model how you could use doubles or counting on.

Connect

Ask students to work out 5 + 6 = using knowledge of doubles and/or counting.

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Number operations and strategies to solve number operations can be recorded using words, numbers, diagrams, and symbols.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 10 objects by grouping and counting

Subitise (recognise without counting) the number of objects in a collection of up to 10

Identify, read, and write whole numbers up to at least 10

Suggested Learning Outcomes

MSolve one digit addition problems.

Explain how to use known facts to solve addition problems.

Independent Tasks

Seini was collecting some flowers. She picked 4 red flowers and 4 yellow flowers. How many flowers did she pick altogether?

Sepi was collecting some flowers. She picked 5 orange flowers and 4 white flowers. How many flowers did she pick altogether?

Tiana was collecting some flowers. She picked 5 blue flowers and 5 yellow flowers. How many flowers did she pick altogether?

Lia was collecting some flowers. She picked 6 red flowers and 5 white flowers. How many flowers did she pick altogether?

4 + 3 =
3 + 4 =
7 + 6 =
6 + 7 =

Mathematical Language

Add

Anticipations

Solutions, Misconceptions

Task 7

Vimi's soccer team scored 3 goals in one game and 6 goals in another game. How many goals did her team score altogether?

Nate's soccer team scored 7 goals in one game and 4 goals in another game. How many goals did his team score altogether?

Leti's soccer team scored 5 goals in one game and 9 goals in another game. How many goals did her team score altogether?

Teacher Notes

Introduce each problem one at a time and given students an opportunity to solve it and share back before introducing the next problem.

Have concrete material available if needed for students to select (e.g., tens frames, counters).

Expect to students to draw/record their number sentences. Model this if needed.

Notice and highlight if students use the commutative property of addition.

Shareback

Select students who are using counting on to solve the problem to share. Record this on board or if no students are using counting on, then model as another way the teacher has seen used before. If students are able to use counting on, then select students using a grouping solution to share or model this as an alternative solution strategy.

If students use the commutative property (e.g., 3 + 6 = 6 + 3), highlight this and discuss with the other students.

Connect

Ask students to describe how you would solve the following problem by counting on or using grouping:

6 + 8 =

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Number operations and strategies to solve number operations can be recorded using words, numbers, diagrams and symbols.

There are arithmetic properties that characterise addition and multiplication as operations. These are the commutative, associative, distributive, and identity properties. Addition and subtraction and multiplication and division have an inverse relationship.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 20 objects by grouping and counting

Subitise (recognise without counting) the number of objects in a collection of up to 10

Identify, read, and write whole numbers up to at least 10

Suggested Learning Outcomes

Solve one digit addition problems.

Explain how to use known facts to solve addition problems.

Explain the commutative property of addition.

Mathematical Language

Add, commutative property.

Independent Tasks

Vimi's soccer team scored 6 goals in one game and 2 goals in another game. How many goals did her team score altogether?

Nate's soccer team scored 8 goals in one game and 6 goals in another game. How many goals did his team score altogether?

Leti's soccer team scored 9 goals in one game and 4 goals in another game. How many goals did her team score altogether?

7 + 5 =
6 + 8 =
5 + 9 =

Anticipations

Solutions, Misconceptions

Task 8

Mele had 6 colouring pencils and her friend Sarah borrowed 3 colouring pencils. How many colouring pencils does Mele have now?

Rita had 9 colouring pencils and her friend Leesa borrowed 5 colouring pencils. How many colouring pencils does Rita have now?

Sangeeta had 12 colouring pencils and her friend Mata borrowed 3 colouring pencils. How many colouring pencils does Sangeeta have now?

Teacher Notes

Introduce each problem one at a time and given students an opportunity to solve it and share back before introducing the next problem.

Have concrete material available if needed for students to select (e.g., tens frames, counters).

Expect to students to draw/record their number sentences. Model this if needed.
Notice students who use grouping to help solve the problems or known facts that draw on the inverse relationship of addition and subtraction, e.g. 3 + 3 = 6 so 6 - 3 = 3

Shareback

Select student solution strategies where they have used inverse relationships, grouping, and knowledge of sets (e.g., 3 + 3 = 6 so 6 – 3 = 3) or have subtracted in parts.

If no students use grouping or subtraction in parts, then model this as a solution strategy that students have used in the past.

Connect

Ask students to describe how you would solve the following problem using knowledge of sets or subtraction in parts:

14 – 5 =

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Number operations and strategies to solve number operations can be recorded using words, numbers, diagrams and symbols.

There are arithmetic properties that characterise addition and multiplication as operations. These are the commutative, associative, distributive, and identity properties.

Addition and subtraction and multiplication and division have an inverse relationship.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 20 objects by grouping and counting

Subitise (recognise without counting) the number of objects in a collection of up to 10

Identify, read, and write whole numbers up to at least 20

Partition and regroup up to 20 objects in different ways

Suggested Learning Outcomes

Solve subtraction problems by splitting a set into groups.

Solve subtraction problems by bridging decades.

Represent and explain reasoning using pictures, numbers, and words.

Independent Tasks

Sima caught 7 fish and gave his friend 4 fish. How many fish does Sima have left?

Timo caught 9 fish and gave his friend 4 fish. How many fish does Timo have left?

Max caught 11 fish and gave his friend 2 fish. How many fish does Max have left?

8 – 3 =
6 – 4=
5 – 3 =
4 – 4 =

Mathematical Language

Subtract, inverse relationship, addition, subtraction.

Anticipations

Solutions, Misconceptions

Task 9

Work with your partner to work out which number sentences are true or false.

$8 = 8$

$4 + 3 = 7 + 4$

$9 = 5 + 4$

$8 + 6 = 9 + 5$

$10 - 8 = 9 - 7$

$14 - 6 = 14 - 6$

$7 = 10$

Explain why you think the number sentences are true or false.

Teacher Notes

Ensure that students understand what true and false means. Introduce notation of not equal ($\neq$) for the number sentences that they think are false.

Focus on the equal sign as showing an equivalent relationship across both sides.

Students may begin by demonstrating misconceptions ($4 + 3 = 7 + 4$ is true because $4 + 3 = 7$). This can be used to position students to agree/disagree. Teacher to notice students who are able to accept the use of the equals sign to show equivalent relationships.

Use arrows and notation to show relationships on the equations to the students.

Shareback

Allow students to share misconceptions related to the equal sign to position them to engage in argumentation. Draw out discussion that the equal sign means the same on both sides but also that it shows a relationship.

Select students to share who have used patterns and noticed relationships to recognise equivalence.

Big Ideas

Equations show relationships of equality between parts on either side of the equal sign. The properties of equality are: If the same real number is added or subtracted to both sides of an equation, equality is maintained; If both sides of an equation are multiplied or divided by the same real number (not dividing by 0), equality is maintained; Two quantities equal to the same third quantity are equal to each other.

Curriculum Links

During Year 1

Solve true or false number sentences and open number sentences involving additional and subtraction of one-digit numbers using an understanding of the equal sign

During Year 2

Solve true or false number sentences and open number sentences involving additional and subtraction of one- and two-digit numbers using an understanding of the equal sign

Connect

Ask students to write their own true and false number sentences.

Note students who use the equal sign flexibly.

Suggested Learning Outcomes

Explain and justify relationships between numbers in an equation.

Write statements of equivalence in words and using notation.

Solve equivalence problems and explain and justify the solutions.

Independent Tasks

Solve these problems:

3 + 9 =

4 + 8 =

5 + 7 =

6 + 6 =

7 + 5 =

8 + 4 =

9 + 3 =

What patterns do you notice in the equations? Could you write more equations that match the pattern?

Mathematical Language

Equal sign, relationship, same, different.

Anticipations

Solutions, Misconceptions

Task 10

Here are some number sentences. What are the answers?

5 + 3 = 8
3 + 5 =

9 + 6 = 15
6 + 9 =

13 + 7 = 20
7 + 13 =

What patterns do you notice? Did you find an easy way to find the answer?

Teacher Notes

Students may compute each sum separately or draw on the commutative property of addition.

This task is about exploring the commutative property - the idea that you can add in any order and the sum will be the same.

A quasi variable is a large number that can represent any number/ model a mathematical relationship. The students don't need to solve but can generalise mathematical relationships with them.

Equipment could be used to prove the commutative property.

Shareback

SSelect students who use the commutative property rather than calculating. Highlight to the students that you do not need to calculate but can use the relationship to solve different equations. Ask students to consider whether this will always work and when it will not work.

Model writing the number sentences for the children as 9 + 6 = 6 + 9.

Big Ideas

There are arithmetic properties that characterise addition and multiplication as operations. These are the commutative, associative, distributive, and identity properties.

Addition and subtraction and multiplication and division have an inverse relationship.

Curriculum Links

During Year 1

Join and separate groups of up to a total of 20 objects

Partition and regroup up to 20 objects in different ways, using a systematic approach and noticing patterns

Connect

Use quasi-variables (large numbers) to press students to generalise.

89 + 63 = 152
63 + 89 = ?

Can you write your own number sentences that use this pattern?
Does this always work?

Suggested Learning Outcomes

Explain and justify the commutative property of addition.

Represent and explain reasoning using pictures, numbers, and words.

Independent Tasks

Complete the following problems:

11 – 1 =
12 – 1 =
13 – 1 =
11 – 2 =
12 – 2 =
13 – 2 =
11 – 3 =
12 – 3 =
13 – 3 =
11 – 4 =
12 – 4 =
13 – 4 =
11 – 5 =
12 – 5 =
13 – 5 =

What patterns do you notice? Did you find an easy way to find the answer?

Mathematical Language

Addition, commutative property.

Anticipations

Solutions, Misconceptions

Task 11

Tina had 8 beads and gave her friend Mellie 4 beads. How many beads does Tina have now?

Daisy had 10 beads and gave her friend Ana 6 beads. How many beads does Daisy have now?

Kelly had 12 beads and gave her friend Alisi 7 beads. How many beads does Kelly have now?

Teacher Notes

Students may compute each sum separately or draw on the commutative property of addition.

This task is about exploring the commutative property - the idea that you can add in any order and the sum will be the same.

A quasi variable is a large number that can represent any number/ model a mathematical relationship. The students don't need to solve but can generalise mathematical relationships with them.

Equipment could be used to prove the commutative property.

Shareback

Select student solution strategies where they have used inverse relationships, grouping and knowledge of sets (e.g., 4 + 4 = 8 so 8 – 4 = 4) or have subtracted in parts. If no students use grouping or subtraction in parts, then model this as a solution strategy that students have used in the past.

Connect

Ask students to describe how you would solve the following problem using knowledge of sets or subtracting in parts:

16 – 7 =

Big Ideas

Objects in a set can be grouped and counted to get a final total.

Number operations and strategies to solve number operations can be recorded using words, numbers, diagrams and symbols.

There are arithmetic properties that characterise addition and multiplication as operations. These are the commutative, associative, distributive, and identity properties.

Addition and subtraction and multiplication and division have an inverse relationship.

Curriculum Links

During Year 1

Identify, read, and write whole numbers up to at least 20

Join and separate groups of up to a total of 20 objects and find the difference between groups by grouping and counting (e.g., 9 + 6, 7 + _ = 11)

Suggested Learning Outcomes

Solve subtraction problems by splitting a set into groups.

Solve subtraction problems by bridging decades.

Represent and explain reasoning using pictures, numbers and words.

Mathematical Language

Subtract, inverse relationship, addition, subtraction.

Independent Tasks

Complete the following problems:

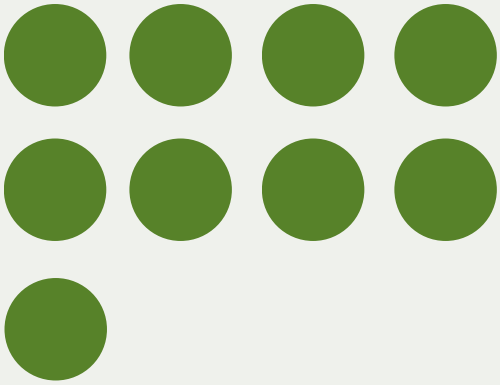
11 – 1 =
12 – 1 =
13 – 1 =
11 – 2 =
12 – 2 =
13 – 2 =
11 – 3 =
12 – 3 =
13 – 3 =
11 – 4 =
12 – 4 =
13 – 4 =
11 – 5 =
12 – 5 =
13 – 5 =

What patterns do you notice? Did you find an easy way to find the answer?

Anticipations

Solutions, Misconceptions

Task 12



Use number sentences to represent this pattern in as many ways as you can.

Teacher Notes

Notice students' use of patterns e.g., 5 + 4 = 9 and 4 + 5 = 9, 9 – 5 = 4, 9 – 4 = 5, 2 + 2 + 2 + 2 + 1 = 9, or 1 + 2 + 2 + 2 + 2 = 9. Develop discussion using student generated number sentences that show patterns and relationships.

Encourage students to write equations. Model this for them if needed and use materials to make a connection.

Shareback

Select students who have number sentences that show patterns to share (e.g., 5 + 4 = 9 and 4 + 5 = 9, 9 – 5 = 4, 9 – 4 = 5). Ask students to identify the patterns and discuss whether they will always work. Record the conjectures and generalisations.

Connect

Ask students to whether they notice any number sentences that match and explain why they match.

Big Ideas

There are arithmetic properties that characterise addition and multiplication as operations. These are the commutative, associative, distributive, and identity properties. Addition and subtraction and multiplication and division have an inverse relationship.

Equations show relationships of equality between parts on either side of the equal sign. The properties of equality are: If the same real number is added or subtracted to both sides of an equation, equality is maintained; If both sides of an equation are multiplied or divided by the same real number (not dividing by 0), equality is maintained; Two quantities equal to the same third quantity are equal to each other.

Curriculum Links

Subitise (recognise without counting) the number of objects in a collection of up to 5

Identify, read, and write whole numbers up to at least 10

Compare and order whole numbers up to at least 10 and ordinal numbers (e.g., 1st, 2nd, 3rd), using words

Suggested Learning Outcomes

Represent the same number in lots of different ways.

Identify the inverse relationship between addition and subtraction.

Explain and justify the commutative property.

Assessment Tasks

Select one or more of the following assessment tasks (attached at the end of the document) as the independent activity:

Task 1: Addition and subtraction problems to solve.

Task 2: Write number sentences related to a dot pattern.

Task 3: Properties of numbers and operations.

Mathematical Language

Commutative property, inverse relationship, addition, subtraction, equal.

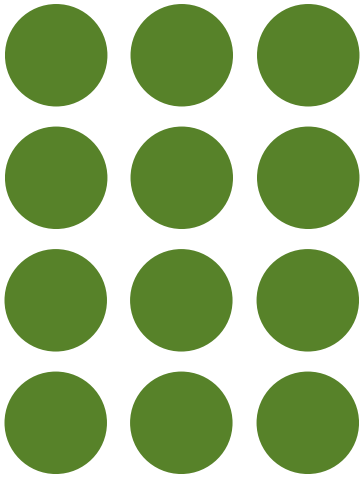
Anticipations

Solutions, Misconceptions

Assessment Task 1 - Number - Year 0

Write one or more word problems for a friend involving addition or subtraction. Show how you would solve them.

Assessment Task 2 - Number - Year 0



Write number sentences about the dots about above.

Describe what patterns you can find.

Why do your patterns work?

Do they work with other numbers?

Assessment Task 3 - Number - Year 0

3 + 4 = 9 + 5 = 2 + 2 + 2 = 4 + 3 =

7 + 3 = 3 + 7 = 10 - 7 =

10 - 3 = 3 x 2 = 10 + 5 = 2 x 3 =

Look at the number sentences above.

Describe what patterns you can find.

Why do your patterns work?

Do they work with other numbers?