# PLACE VALUE CONCEPT SEQUENCE

<table>
<thead>
<tr>
<th>KINDERGARTEN / PREP / RECEPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Partition single-digit numbers, and 10, into 2 or more equal or unequal parts.</td>
<td><strong>Teen numbers, friends of 10 and 20, and partitioning numbers, are all investigated informally in Kindergarten / Prep / Reception.</strong></td>
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<tr>
<td>2</td>
<td>Make friends of 10 using 10 frames.</td>
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<tr>
<td>3</td>
<td>Partition teen numbers into 2 or more equal and unequal parts.</td>
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<td>4</td>
<td>Make teen numbers as '10 and ...' using two 10 frames.</td>
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<td>5</td>
<td>Make friends of 20 using two 10 frames.</td>
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<tr>
<td>6</td>
<td>.1 Friends of 10 through addition</td>
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<td></td>
<td>.2 Friends of 10 through subtraction</td>
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<td>.3 Friends of 10 through commutativity.</td>
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<tr>
<td>7</td>
<td>Explain place value of teen numbers on a place value chart.</td>
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<tr>
<td>8</td>
<td>Partition single-digit numbers and teen numbers using place value and non-place value.</td>
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</table>

| YEAR 1 | | | |
|----------------------------------|---|---|---|---|
| 9 | .1 Friends of 20 through addition. | | | |
| | .2 Friends of 20 through subtraction. | | | |
| 10 | Friends of any decade, through addition and subtraction. | | | |
| 11 | .1 Explain standard place value of two-digit numbers. | | | |
| | .2 Explain non-standard place value of two-digit numbers. | | | |
| | .3 Partition two-digit numbers using standard and non-standard place value and non-place value. | | | |
| | .4 Read and order two-digit numbers using place value. | | | |

*Use these concepts now to add and subtract single-digit numbers bridging 10 using place value. (Addition and Subtraction 6 and 7)*

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**DIFFERENTIATE**

*Differentiate partitioning using these levels*

*Differentiate friends of 10 using these levels*

*Differentiate place value using these concepts*
### YEAR 2

| 12 | .1 Explain counting forwards by 10s on the decade.  
|    | .2 Explain counting backwards by 10s on the decade.  
|    | .3 Explain counting forwards by 10s off the decade.  
|    | .4 Explain counting backwards by 10s off the decade. (Also Patterns and Algebra II)  

Use this concept now to add and subtract tens numbers, counting by 10 on the decade. (Addition and Subtraction 13) and to measure lengths using informal units grouped in tens, and using centimetres. (Measurement and Geometry 21)  

| 13 | Partition tens numbers.  

| 14 | Identify friends of any 100, through addition and subtraction.  

| 15 | .1 Explain standard and non-standard place value of three-digit numbers grouping flexibly in hundreds, tens and ones.  
|    | .2 Partition three-digit numbers using standard and non-standard place value and non-place value.  
|    | .3 Read and order three-digit numbers using place value.  

Use these concepts now to add and subtract tens numbers, partitioning to bridge to 100. (Addition and Subtraction 14) and to add and subtract tens numbers and two-digit numbers, counting by 10 off the decade. (Addition and Subtraction 15)  

| 16 | .1 Count forwards by 100s, 10s and 1s on and off the hundred and decade from three-digit numbers.  
|    | .2 Count backwards by 100s, 10s and 1s on and off the hundred and decade from three-digit numbers. (Also Patterns and Algebra 12)  

Use these concepts now to add and subtract tens numbers, counting by 10 on the decade. (Addition and Subtraction 13) and to add and subtract tens numbers and two-digit numbers, counting by 10 off the decade. (Addition and Subtraction 15) and add and subtract tens numbers and numbers with tens and ones, partitioning tens and ones using place value. (Addition and Subtraction 16) and to add and subtract numbers with tens and ones, partitioning tens and ones using place value. (Addition and Subtraction 17)  

### YEAR 3

| 17 | .1 Explain standard and non-standard place value of four-digit numbers.  
|    | .2 Partition four-digit numbers using standard and non-standard place value and non-place value.  
|    | .3 Read and order four-digit numbers using place value.  
|    | .4 Count forwards and backwards by 100s and 1000s on and off the decade, hundred and thousand from four-digit numbers, including over 1000s. (Also Patterns and Algebra 16)  

Use these concepts now to add and subtract three- and four-digit numbers using place value. (Addition and Subtraction 21) and to add and subtract three- and four-digit numbers as money using place value. (Addition and Subtraction 23)  

| 18 | .1 Multiplicative place value of whole numbers to ten-thousands by multiplying by 10.  
|    | .2 Multiplicative place value of whole numbers to ten-thousands by dividing by 10.  

Use this concept now to multiply and divide by 10 using multiplicative place value. (Multiplication and Division 9) and to relate metric length units (metres, decimetres, centimetres and millimetres) to multiplicative place value. (Measurement and Geometry 30)
| YEAR 4 | 19 | .1 Explain **standard and non-standard place value of five-digit numbers**.  
.2 **Partition five-digit numbers** using standard and non-standard place value and non-place value.  
.3 **Read and order five-digit numbers** using place value.  
.4 Count forwards and backwards by 1000s, 100s, 10s and 1s on and off the decade, hundred and thousand from five-digit numbers. (Also Patterns and Algebra 20)  

*Use this concept now to add and subtract five-digit numbers, including as money, using place value. (Addition and Subtraction 24)*

| 20 | .1 **Multiplicative place value of decimals to tenths** by dividing 1 by 10 to get tenths.  
.2 **Multiplicative place value of decimals to tenths** by multiplying tenths by 10 to get 1.  
.3 **Standard and non-standard place value of decimals to tenths**.  
.4 Express tenths as both fraction and decimal. (Also Fractions and Decimals 11)  

| 21 | .1 **Multiplicative place value of decimals to hundredths** by dividing a tenth by 10 to get hundredths.  
.2 **Multiplicative place value of decimals to hundredths** by multiplying hundredths by 10 to get tenths.  
.3 **Standard and non-standard place value of decimals to hundredths**.  
.4 Express hundredths as both fraction and decimal. (Also Fractions and Decimals 12)  

*Use these concepts now to convert between metres, centimetres, millimetres and millilitres, litres and grams, kilograms. (Measurement and Geometry 39, 45, 47)*

| 22 | Recognise that amounts of money are written with two **decimal places** and cents are a fraction of a dollar. (Also Money and Financial Mathematics II, Fractions and Decimals 16)  

| 23 | Round a number with one or two **decimal places** to the nearest whole number. (Also Fractions and Decimals 17)  

Differentiate partitioning using these concepts  
Differentiate place value using these concepts  
Differentiate multiplicative place value using these concepts
<table>
<thead>
<tr>
<th>YEAR 5</th>
<th>24</th>
<th><strong>Multiplicative place value of whole numbers and decimals to hundredths</strong> by multiplying and dividing by 10, 100 and 1000. <strong>Standard and non-standard place value of decimals to hundredths</strong>, expressing hundredths as both fraction and decimal. (Also Fractions and Decimals 18)</th>
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<tbody>
<tr>
<td>25</td>
<td><strong>Standard and non-standard place value</strong> and <strong>multiplicative place value</strong> of whole numbers and decimals to thousandths, expressing decimals as both fractions and decimals. (Also Fractions and Decimals 21)</td>
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<tr>
<td>YEAR 6</td>
<td>26</td>
<td><strong>Order decimals to thousandths</strong> on a number line, recording decimals as fractions and decimals. (Also Fractions and Decimals 22)</td>
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<tr>
<td>27</td>
<td>.1 Explain patterns that increase by adding fractions. .2 Explain patterns that decrease by subtracting fractions. .3 Explain patterns that increase by adding <strong>decimals</strong>. .4 Explain patterns that decrease by subtracting <strong>decimals</strong>. (Also Fractions and Decimals 24, Patterns and Algebra 27)</td>
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<tr>
<td>28</td>
<td><strong>Standard, non-standard, and multiplicative place value of whole numbers and decimals of any size</strong> by multiplying and dividing by 10, 100 and 1000. (Also Fractions and Decimals 25)</td>
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<tr>
<td>29</td>
<td><strong>Multiply and divide decimals to thousandths</strong> by whole numbers and <strong>powers of 10</strong>. Record remainders as fractions and decimals when dividing by 10. (Also Multiplication and Division 25, Fractions and Decimals 26)</td>
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<tr>
<td>30</td>
<td><strong>Describe probabilities using fractions, decimals and percentages</strong>, including on a number line. (Also Fractions and Decimals 31, Statistics and Probability 18)</td>
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<tr>
<td>31</td>
<td>.1 Number patterns with fractions in a table, describing the rule using the relationship between the term and the number. .2 Number patterns with <strong>decimals</strong> in a table, describing the rule using the relationship between the term and the number. (Also Addition and Subtraction 31, Patterns and Algebra 28, Fractions and Decimals 34)</td>
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</tr>
<tr>
<td>32</td>
<td>.1 Add <strong>decimals</strong> using place value. .2 Subtract <strong>decimals</strong> using place value. (Also Addition and Subtraction 29, Fractions and Decimals 32)</td>
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</tbody>
</table>
The PLACE VALUE Concept Sequence contains a progression of understanding from Kindergarten/Prep/Reception to Year 6.

A concept level with

- is a partitioning concept.
- is a friends of 10 concept.
- is an additive place value concept.
- is a multiplicative place value concept.

What is a partitioning concept?
Partitioning simply means to break into parts!
Children partition single-digit numbers, then teen numbers, then two-digit numbers, then tens numbers, then three-digit numbers, then four-digit numbers and then five-digit numbers.

What is a friends of 10 concept?
Friends of 10 are simply 2 numbers that add to make 10.
Children investigate friends of 10, then friends of 20, then friends of any decade, then friends of 100.

What is an additive place value concept?
Additive place value means we are adding the values together to make the value of the number, for example, 34 = 3 tens + 4 ones (standard place value), 34 = 2 tens + 14 ones (non-standard place value).
Children use standard and non-standard place value to describe teen numbers, then two-digit numbers, then three-digit numbers, then four-digit numbers, then five-digit numbers, then numbers to tenths, then numbers to hundredths, then numbers to thousandths, then numbers of any size.

What is a multiplicative place value concept?
Multiplicative place value means we are multiplying by 10 to get the value of the column on the left, and dividing by 10 to get the value of the column on the right.
Children describe multiplicative place value of whole numbers, decimals to tenths, decimals to hundredths, decimals to thousandths, and numbers of any size.

Place value is investigated informally in Kindergarten / Prep / Reception.

To differentiate student learning in Year 1 to Year 6, start from the Year 1 levels of understanding, as these investigate concepts formally.
Before students in Year 1 can begin to investigate Place Value concepts (friends of 10, partitioning and place value of teen numbers), they need to be able to

- count forwards and backwards to at least 20,
- read and write numerals to at least 20, and
- count at least 20 items.

So, you want to begin teaching Year 1 Place Value concepts, but not all students can count forwards and backwards, read and write numerals or count items to at least 20.

All students can engage in the explicit teaching segment of the lesson involving (a) counting forwards and backwards to 20, (b) writing numerals correctly, and (c) recognising numerals to 10 (d) counting up to 10 items with one-to-one correspondence and friends of 10 OR partitioning single-digit numbers OR place value of teen numbers.

What does differentiation using these sample levels of understanding look like?

**EXPLICIT TEACHING**

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, (a) counting forwards and backwards to 20, (b) writing numerals correctly, and (c) recognising numerals to 20 (d) counting up to 20 items with one-to-one correspondence and friends of 10 OR partitioning single-digit numbers OR place value of teen numbers.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour. For example,

(a) count forwards and backwards to 20
(b) write numerals correctly to 20
(c) recognise numerals to 20
(d) counting up to 20 items with one-to-one correspondence

friends of 10 OR partitioning single-digit OR place value of teen numbers
Differentiating Place Value in Year 1:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet count forwards and backwards to 20: Identify what number each of these students can count forwards to, and can count backwards from, for example, forwards to 10 and backwards from 5. 5 times a day (in lesson breaks etc) say to each child, ‘go and count forwards to 11 (the next number) to Annie’ (a student who can count forwards to at least 11) or ‘go and count backwards from 6 (the next number) to Billy (a child who can count backwards from at least 6).

(b) Students who cannot yet write numerals correctly: Identify what numbers each of these students can write correctly, for example, 1, 2, 4, 6. Make each of these students a blue (card or text colour) set of numerals to include the numerals they can record correctly, and 1 more numeral, for example, 1, 2, 3, 4 and 6. Teach the child that when they get their blue set of cards, they select 1 card at a time and practice writing the numeral on a whiteboard. When the student has learned to write all of these numerals correctly, give them the next number they cannot yet write correctly, for example, 5. Don’t allow these students to ever record a numeral they cannot write correctly, as this will result in them learning to write the numeral incorrectly, for example, reversals.

In maths lessons, if these students can count items to 20, they may also engage in the place value concept investigation.

(c) Students who cannot yet recognise numerals to 20: Identify what numbers each of these students can recognise, for example, 1 to 10. Make each of these students a green (card or text colour) set of numerals to include the numerals they can recognise, and 1 more numeral, for example, 1 to 11. Teach the child that when they get their green set of cards, they select cards one at a time and name the numeral. When the student has learned to recognise all of these numerals, give them the next number they cannot yet recognise, for example, 12.

In maths lessons, if these students can count items to 20, they may also engage in the place value concept investigation.

(d) Students who cannot yet count up to 20 items with one-to-one correspondence: Identify what number of items each of these students can count, for example, 10. Make each of these students a set of counters to include the number of items they can count, and 1 more counter, for example, 11. Teach the child that when they get their set of counters, they count the counters and explain how many they have. When the student has learned to count these counters, give them one more counter, for example, 12.

Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 1 Grade Scope and Sequence for further professional learning on differentiation.)
Before students in Year 2 can begin to investigate Place Value concepts (count by 10s, friends of 100, partitioning and place value of three-digit numbers), they need to be able to:

- count forwards and backwards over 100, explaining counting forwards and backwards by 1s is adding or subtracting 1 each time,
- explain friends of 10, 20 and any decade,
- partition single-digit and two-digit numbers, and
- explain standard and non-standard place value of two-digit numbers.

So, you want to begin teaching Year 2 Place Value concepts, but not all students can explain friends of 10, 20 or any decade, partition single- and two-digit numbers, explain place value of two-digit numbers.

All students can engage in the explicit teaching segment of the lesson involving (a) count forwards and backwards by 1s is adding or subtracting 1 each time and count by 10s OR (b) friends of 10, 20 and any decade, and friends of 100 OR (c) partitioning single- and two-digit numbers, and partitioning tens numbers OR partitioning three-digit numbers OR (d) place value of two-digit numbers and place value of three-digit numbers.

What does differentiation using these sample levels of understanding look like?

**EXPLICIT TEACHING**

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, (a) count forwards and backwards by 1s is adding or subtracting 1 each time and count by 10s OR (b) friends of 10, 20 and any decade, and friends of 100 OR (c) partitioning single- and two-digit numbers, and partitioning tens numbers OR partitioning three-digit numbers OR (d) place value of two-digit numbers and place value of three-digit numbers.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour. For example,

- (a) count forwards and backwards by 1s is adding or subtracting 1 each time and count by 10s
- (b) friends of 10, 20 and any decade, and friends of 100
- (c) partitioning single- and two-digit numbers and partitioning tens numbers OR partitioning three-digit numbers
- (d) place value of two-digit numbers and three-digit numbers
Differentiating Place Value in YEAR 2:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet count forwards and backwards over 100, explaining counting forwards and backwards by 1s is adding or subtracting 1 each time: Identify what number each of these students can count forwards to, and can count backwards from, for example, forwards to 20 and backwards from 5. 5 times a day (in lesson breaks etc) say to each child, ‘go and count forwards to 21 (the next number) to Annie’ (a student who can count forwards to at least 21) or ‘go and count backwards from 6 (the next number) to Billy (a child who can count backwards from at least 6). In the Maths lesson, where other students are investigating counting by 10s, these students can investigate counting by 1s (see Investigation for Addition and Subtraction 1 and 2).

(b) Students who cannot yet explain friends of 10, 20 and any decade: Identify what level of understanding about friends of 10 each of these students has, for example, no understanding or friends of 10 or friends of 20. Give students with no understanding a 10 frame, 10 counters and a pack of cards to investigate friends of 10. Give students with understanding of friends of 10, 2 10 frames, 20 counters and a pack of playing cards to investigate friends of 20. Give students with understanding of friends of 20, a set of small frames and a pack of playing cards to investigate friends of any decade. In the Maths lesson, where other students are investigating friends of 100, these students can investigate friends of 10 (see Investigation for Place Value 6) Friends of 20 (see Investigation for Place Value 9) or friends of any decade (see Investigation for Place Value 10).

(c) Students who cannot yet partition single- and two-digit numbers: Identify what level of understanding about partitioning each of these students has, for example, no understanding or partitioning single-digit numbers or partitioning teen numbers. Give students with no understanding 9 large connecting blocks and a pack of playing cards to investigate partitioning single-digit numbers. Give students with understanding of partitioning single-digit numbers, 19 large connecting blocks and a pack of playing cards to investigate partitioning teen numbers. Give students with understanding of partitioning teen numbers, a pack of playing cards to investigate partitioning two-digit numbers. In the Maths lesson, where other students are investigating partitioning tens numbers, these students can investigate partitioning single-digit numbers (see Investigation for Place Value 8) partitioning teen-numbers (Place Value 8) or partitioning two-digit numbers (Place Value 11).

(d) Students who cannot yet explain place value of two-digit numbers: Identify what size numbers each of these students can explain standard and non-standard place value of, for example, no understanding or teen numbers or 20-something numbers. Give students with no understanding 19 small connecting blocks and a pack of playing cards to investigate standard, then non-standard place value of teen numbers. Give students with understanding of standard and non-standard place value of teen numbers, 29 small connecting blocks and a pack of playing cards to investigate standard and non-standard place value of 20-something numbers. Give students with understanding of standard and non-standard place value of 20-something numbers, a pack of playing cards to investigate standard and non-standard place value of two-digit numbers. In the Maths lesson, where other students are investigating standard and non-standard place value of three-digit numbers, these students can investigate standard and non-standard place value of teen and two-digit numbers (see Investigation for Place Value 7 and 11).

Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 2 Grade Scope and Sequence for further professional learning on differentiation.)
Differentiating Place Value in YEAR 3:

Before students in Year 3 can begin to investigate Place Value concepts (place value of four-digit numbers and multiplicative place value of whole numbers), they need to be able to

- explain partitioning and standard and non-standard place value of two- and three-digit numbers.

Some students may be ready to investigate new concepts before others. This will require differentiation!

So, you want to begin teaching Year 3 Place Value concepts, but not all students can explain place value of two-digit numbers.

All students can engage in the explicit teaching segment of the lesson involving (a) place value of two-digit numbers (b) place value of three-digit numbers and (c) place value of four-digit numbers.

What does differentiation using these sample levels of understanding look like?

EXPLICIT TEACHING

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, (a) place value of two-digit numbers (b) place value of three-digit numbers and (c) place value of four-digit numbers.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour. For example,

(a) place value of two-digit numbers
(b) place value of three-digit numbers
(c) place value of four-digit numbers

Some students may be ready to investigate new concepts before others. This will require differentiation!
Differentiating Place Value in YEAR 3:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet explain standard and non-standard place value of two-digit numbers: Identify what size numbers each of these students can explain standard and non-standard place value of, for example, no understanding or teen numbers or 20-something numbers. Give students with no understanding 19 small connecting blocks and a pack of playing cards to investigate standard, then non-standard place value of teen numbers. Give students with understanding of standard and non-standard place value of teen numbers, 29 small connecting blocks and a pack of playing cards to investigate standard and non-standard place value of 20-something numbers. Give students with understanding of standard and non-standard place value of 20-something numbers, a pack of playing cards to investigate standard and non-standard place value of two-digit numbers. In the Maths lesson, where other students are investigating standard and non-standard place value of four-digit numbers, these students can investigate standard and non-standard place value of teen and two-digit numbers (see Investigation for Place Value 7 and 11).

(b) Students who cannot yet explain standard and non-standard place value of three-digit numbers: Give students with understanding of standard and non-standard place value of two-digit numbers, a pack of playing cards and a set of small 10 frames to investigate standard and non-standard place value of three-digit numbers. In the Maths lesson, where other students are investigating standard and non-standard place value of four-digit numbers, these students can investigate standard and non-standard place value of three-digit numbers (see Investigation for Place Value 15).

Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 3 Grade Scope and Sequence for further professional learning on differentiation.)
Before students in Year 4 can begin to investigate Place Value concepts (place value of five-digit numbers and multiplicative place value of numbers to tenths and hundredths), they need to be able to

- explain standard and non-standard place value of two-, three- and four-digit numbers,
- explain multiplicative place value of whole numbers.

So, you want to begin teaching Year 4 Place Value concepts, but not all students can explain place value of two- and three-digit numbers or explain multiplicative place value of whole numbers.

All students can engage in the explicit teaching segment of the lesson involving (a) place value of two-digit numbers AND three-digit numbers and AND four-digit numbers AND five-digit numbers AND numbers to tenths AND numbers to hundredths OR (b) multiplicative place value of whole numbers AND multiplicative place value of numbers to tenths AND multiplicative place value of numbers to hundredths.

What does differentiation using these sample levels of understanding look like?

**EXPLICIT TEACHING**

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, (a) place value of two-digit numbers AND place value of three-digit numbers and AND place value of four-digit numbers AND place value of five-digit numbers, OR (b) multiplicative place value of whole numbers AND multiplicative place value of numbers to tenths AND multiplicative place value of numbers to hundredths.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour, for example, (a) place value of two-digit AND three-digit AND four-digit AND five-digit numbers AND tenths AND hundredths (b) Multiplicative place value of whole numbers AND tenths AND hundredths.

Some students may be ready to investigate new concepts before others. This will require differentiation!
Differentiating Place Value in YEAR 4:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet explain standard and non-standard place value of two- or three- or four-digit numbers: Identify what size numbers each of these students can explain standard and non-standard place value of, for example, no understanding or teen numbers or 20-something numbers or two-digit numbers or three-digit numbers. Give students with no understanding 19 small connecting blocks and a pack of playing cards to investigate standard, then non-standard place value of teen numbers. Give students with understanding of standard and non-standard place value of teen numbers, 29 small connecting blocks and a pack of playing cards to investigate standard and non-standard place value of 20-something numbers. Give students with understanding of standard and non-standard place value of 20-something numbers, a pack of playing cards to investigate standard and non-standard place value of two-digit numbers. Give students with understanding of standard and non-standard place value of two-digit numbers, a pack of playing cards and a set of small 10 frames to investigate standard and non-standard place value of three-digit numbers. Give students with understanding of standard and non-standard place value of three-digit numbers, a pack of playing cards to investigate standard and non-standard place value of four-digit numbers. In the Maths lesson, where other students are investigating standard and non-standard place value of five-digit numbers, and numbers to tenths and hundredths, these students can investigate standard and non-standard place value of teen and two-digit numbers (see Investigation for Place Value 7 and 11), three-digit numbers (see Investigation for Place Value 15) or four-digit numbers (see Investigation for Place Value 17).

(b) Students who cannot yet explain multiplicative place value of whole numbers: In the Maths lesson, where other students are investigating multiplicative place value to tenths and hundredths, these students can investigate multiplicative place value of whole numbers (see Investigation for Place Value 18).

Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 4 Grade Scope and Sequence for further professional learning on differentiation.)
Differentiating Place Value in YEAR 5:

Before students in Year 5 can begin to investigate Place Value concepts (standard, non-standard and multiplicative place value of numbers to thousandths), they need to be able to

• explain standard and non-standard place value of numbers to hundredths,
• explain multiplicative place value to hundredths.

So, you want to begin teaching Year 5 Place Value concepts, but not all students can explain standard and non-standard, and multiplicative place value to hundredths.

All students can engage in the explicit teaching segment of the lesson involving (a) standard and non-standard place value of whole numbers AND of numbers with decimals to thousandths, OR (b) multiplicative place value of whole numbers AND multiplicative place value of numbers to tenths AND multiplicative place value of numbers to hundredths AND multiplicative place value of numbers to thousandths.

What does differentiation using these sample levels of understanding look like?

EXPLICIT TEACHING

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, (a) standard and non-standard place value of whole numbers AND of numbers with decimals to thousandths, OR (b) multiplicative place value of whole numbers AND multiplicative place value of numbers to tenths AND multiplicative place value of numbers to hundredths AND multiplicative place value of numbers to thousandths.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour. For example, (a) place value of whole numbers AND decimals to thousandths, (b) Multiplicative place value of whole numbers AND decimals to tenths AND hundredths AND thousandths.
Differentiating Place Value in YEAR 5:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet explain standard and non-standard place value of numbers to hundredths: Identify what size numbers each of these students can explain standard and non-standard place value of, for example, no understanding or teen numbers or 20-something numbers or two-digit numbers or three-digit numbers or four-digit numbers or five-digit numbers or numbers to tenths or numbers to hundredths. Give students with no understanding 19 small connecting blocks and a pack of playing cards to investigate standard and non-standard place value of 20-something numbers. Give students with understanding of standard and non-standard place value of 20-something numbers, a pack of playing cards to investigate standard and non-standard place value of two-digit numbers. Give students with understanding of standard and non-standard place value of two-digit numbers, a pack of playing cards and a set of small 10 frames to investigate standard and non-standard place value of three-digit numbers. Give students with understanding of standard and non-standard place value of three-digit numbers, a pack of playing cards to investigate standard and non-standard place value of four-digit numbers. Give students with understanding of standard and non-standard place value of four-digit numbers, a pack of playing cards to investigate standard and non-standard place value of five-digit numbers. Give students with understanding of standard and non-standard place value of five-digit numbers, a pack of playing cards to investigate standard and non-standard place value of numbers to tenths. Give students with understanding of standard and non-standard place value of numbers to tenths, a pack of playing cards to investigate standard and non-standard place value of numbers to hundredths. In the Maths lesson, where other students are investigating standard and non-standard place value of numbers to thousandths, these students can investigate standard and non-standard place value of teen and two-digit numbers (see Investigation for Place Value 7 and 11), three-digit numbers (see Investigation for Place Value 15), four-digit numbers (see Investigation for Place Value 17), five-digit numbers (see Investigation for Place Value 19) numbers to tenths (see Investigation for Place Value 20) or numbers to hundredths (see Investigation for Place Value 21).

(b) Students who cannot yet explain multiplicative place value of whole numbers or numbers to hundredths: In the Maths lesson, where other students are investigating multiplicative place value to thousandths, these students can investigate multiplicative place value of whole numbers (see Investigation for Place Value 18), to tenths (see Investigation for Place Value 20) and to hundredths (see Investigation for Place Value 21). Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 5 Grade Scope and Sequence for further professional learning on differentiation.)
Differentiating Place Value in YEAR 6:

Before students in Year 6 can begin to investigate Place Value concepts (standard, non-standard and multiplicative place value of numbers to any size), they need to be able to

- explain standard and non-standard place value of numbers to thousandths,
- explain multiplicative place value to thousandths.

Some students may be ready to investigate new concepts before others. This will require differentiation!

All students can engage in the explicit teaching segment of the lesson involving (a) standard, non-standard and multiplicative place value of whole numbers (b) standard, non-standard and multiplicative place value of numbers with decimals to any size.

What does differentiation using these sample levels of understanding look like?

EXPLICIT TEACHING

The explicit teaching segment of the lesson covers the levels of concepts that students will be investigating, for example, a) standard and non-standard place value of whole numbers AND of numbers with decimals to thousandths, OR (b) multiplicative place value of whole numbers AND tenths AND hundredths AND thousandths AND any size.

All students participate in the explicit teaching segment, regardless of their current level of understanding.

Begin the explicit teaching using questioning at the lowest level of understanding, then proceeding through other levels. Using a different colour for each level allows students to identify and name their level by colour. for example,

(a) standard, non-standard and multiplicative place value of whole numbers

(b) standard, non-standard and multiplicative of numbers with decimals to any size
Differentiating Place Value in YEAR 6:

INVESTIGATION AND REFLECTION

(a) Students who cannot yet explain standard and non-standard place value of numbers to thousandths: Identify what size numbers each of these students can explain standard and non-standard place value of, for example, no understanding or teen numbers or 20-something numbers or two-digit numbers or three-digit numbers or four-digit numbers or five-digit numbers or numbers to tenths or numbers to hundredths. Give students with no understanding 19 small connecting blocks and a pack of playing cards to investigate standard, then non-standard place value of teen numbers. Give students with understanding of standard and non-standard place value of teen numbers, 29 small connecting blocks and a pack of playing cards to investigate standard and non-standard place value of 20-something numbers. Give students with understanding of standard and non-standard place value of 20-something numbers, a pack of playing cards to investigate standard and non-standard place value of two-digit numbers. Give students with understanding of standard and non-standard place value of two-digit numbers, a pack of playing cards and a set of small 10 frames to investigate standard and non-standard place value of three-digit numbers. Give students with understanding of standard and non-standard place value of three-digit numbers, a pack of playing cards to investigate standard and non-standard place value of four-digit numbers. Give students with understanding of standard and non-standard place value of four-digit numbers, a pack of playing cards to investigate standard and non-standard place value of five-digit numbers. Give students with understanding of standard and non-standard place value of five-digit numbers, a pack of playing cards to investigate standard and non-standard place value of numbers to tenths. Give students with understanding of standard and non-standard place value of numbers to tenths, a pack of playing cards to investigate standard and non-standard place value of numbers to hundredths. Give students with understanding of standard and non-standard place value of numbers to hundredths, a pack of playing cards to investigate standard and non-standard place value of numbers to thousandths. In the Maths lesson, where other students are investigating standard and non-standard place value of numbers to any size, these students can investigate standard and non-standard place value of teen and two-digit numbers (see Investigation for Place Value 7 and 11), three-digit numbers (see Investigation for Place Value 15) four-digit numbers (see Investigation for Place Value 17), five-digit numbers ((see Investigation for Place Value 19) numbers to tenths ((see Investigation for Place Value 20), numbers to hundredths (see Investigation for Place Value 21) or numbers to thousandths (see Investigation for Place Value 25).

(b) Students who cannot yet explain multiplicative place value of whole numbers or numbers to thousandths: In the Maths lesson, where other students are investigating multiplicative place value to numbers of any sizes, these students can investigate multiplicative place value of whole numbers (see Investigation for Place Value 18), to tenths (see Investigation for Place Value 20) to hundredths (see Investigation for Place Value 21) and to thousandths (see Investigation for Place Value 25).

Students do not need to sit with a teacher or other adult, just because they are learning at a different pace. As long as they are investigating a concept at just beyond their current level of understanding, they can investigate independently. (See the Year 6 Grade Scope and Sequence for further professional learning on differentiation.)
As students learn about additive place value concepts, they begin to apply their understanding to (a) adding and subtracting single-digit numbers, (b) then tens numbers, (c) then two-digit numbers, (d) then three-digit numbers, (e) then four-digit numbers, (f) then five-digit numbers, (g) then decimals.

a) As students demonstrate understanding of friends of 10 (Place Value 6), partitioning (Place Value 7) and place value of teen numbers (Place Value 8), they use their understanding to add and subtract single-digit numbers using these place value concepts to bridge to 10 (Add Sub 6, 7).

b) As students demonstrate understanding of friends of 20 and any decade (Place Value 9 and 10), and place value of two-digit numbers (Place Value 11), they use their understanding to add and subtract single-digit numbers to and from two-digit numbers using these place value concepts to bridge to 20 and any decade (Add Sub 8, 9).

c) As students demonstrate understanding of counting forwards and backwards on and off the decade (Place Value 12), they use their understanding to add and subtract tens numbers counting by 10s (Add Sub 13).

d) As students demonstrate understanding of partitioning tens numbers (Place Value 13), friends of 100 (Place Value 14), and place value of three-digit numbers (Place Value 11), they use their understanding to add and subtract tens numbers and two-digit numbers using place value (Add Sub 14, 15, 16, 17).

e) As students demonstrate understanding of place value of four-digit numbers (Place Value 17), they use their understanding to add and subtract three- and four-digit numbers using place value (Add Sub 21, 23).

f) As students demonstrate understanding of place value of five-digit numbers (Place Value 19), they use their understanding to add and subtract five-digit numbers using place value (Add Sub 24).

g) As students demonstrate understanding of place value of decimals (Place Value 20, 21, 25), they use their understanding to add and subtract numbers with decimals using place value (Add Sub 29).

As students learn about multiplicative place value, they begin to apply their understanding to (h) multiply and divide by 10 and (i) metric measurement.

h) As students demonstrate understanding of multiplicative place value of whole numbers (Place Value 18), they use their understanding to multiply and divide by 10 (Mult Div 9).

i) As students demonstrate understanding of multiplicative place value of whole numbers (Place Value 18) and decimals (Place Value 20, 21, 25) they use their understanding to explain metric measurement (Meas Geom 30) and to convert between units of measurement (Meas Geom 39, 45, 47, 51, 57, 59, 64, 67).