

	Standards Addressed	Prerequisite Proficiencies (Content & Skills)	Target Proficiencies (Content & Skills)	Formative Assessments & Activities	Summative Assessments & Projects	Next Steps, Extension & Remediation	Resources (Hyperlinked)
	<i>Hyperlink any standards covered in this unit.</i>	<i>What skills or content knowledge must students have to enter this unit?</i>	<i>What skills or content knowledge will students master in this unit? Include 21st-century and literacy skills.</i>	<i>How will you monitor student progress and track growth throughout the unit?</i>	<i>How will you evaluate student learning at the end of the unit?</i>	<i>What are the next steps after this unit? Include strategies for remediation and extension.</i>	<i>What texts, tools, or digital resources are used in this unit?</i>
First Unit (1 Month)	<p>“Counting, Comparison and Arithmetic Introduction”</p> <p>The purpose of this unit is to consolidate counting, appreciation of relative size of numbers and comparison of numbers. Together, these deepen number sense, setting the foundation for deeper understanding of arithmetic, which can be built to next. Addition and subtraction will begin in the later part of this unit.</p> <p><a href="#">K.CC.B.4</a>  <a href="#">K.CC.B.5</a>  <a href="#">K.CC.C6</a>  <a href="#">K.CC.C7</a>  <a href="#">K.OA.A.1</a></p>	<ul style="list-style-type: none"> <li>- Ability to count beyond 20 in their first language, and are familiar with the numbers up to 20 in English.</li> <li>- (Numbers to 20 are particularly difficult for Chinese students and so may need continual review to be able to be recalled.</li> <li>- Appreciation of the concept of matching within number sense: if comparing two groups, you can match the objects. If all objects can be matched, the groups are of equal size.</li> <li>- Confidence with comparison in terms of amount (rather than number). This understanding comes first.</li> </ul>	<ul style="list-style-type: none"> <li>- Students will be able to use both the techniques of counting and matching to compare the numbers of objects in two sets.</li> <li>- Students will be able to look directly at two printed digits between 0 and 10 to say which is bigger.</li> <li>- Students can count up to 20 objects arranged in a regular pattern, and 10 objects scattered.</li> <li>- Students can set up their own counting problems to ask their friends, so as to develop their skills together. (21st century skill of leadership and collaboration; also creativity as they design the problems.)</li> </ul>	<ul style="list-style-type: none"> <li>- Work doing counting and comparison activities in stations from APP’s, worksheets and direct numbers of objects set up. This nature is strong in that it gives greater student independence and autonomy. The teacher will observe, but one student at each station can also be recording activity to practice the 21st century skills of technological awareness. During the stations activity, the teacher can always be working directly with one group to do a more direct formative assessment through direct questioning.</li> <li>- As students begin the first step of arithmetic - representing addition and subtraction</li> </ul>	<ul style="list-style-type: none"> <li>- Students can create booklets of their own counting problems using a creative method of their choice. For example drawing, or arranging objects and then taking a picture. They can then give these booklets to each other to practice counting, with the teacher monitoring.</li> <li>- Students can work in pairs, and arrange objects themselves, asking each other, “Which are there more of?” to practice the comparison and also the English sentence, “There are more _____.”. They can make their own video log or drawings of their questions as project work. The same can be done for asking and answering “Which is bigger?”, between two numbers;</li> </ul>	<p><u>Next Steps</u></p> <p>Again, now that students have developed number sense about the relations between numbers and physical numbers, now they will be ready to progress further into arithmetic. This is important due to its range of applications and the foundations it builds for later on.</p> <p><u>Remediation</u></p> <ul style="list-style-type: none"> <li>- One area students may struggle in here is the English counting to 20.</li> </ul> <p>More focus can be put on songs such as <a href="#">this</a> . These will apply to multiple senses and hence make the counting process more memorable for the students.</p> <p>Individual numbers can also be practiced by methods of memorable receptive games.</p>	<p><a href="#">Kahoot!</a> can be used for quizzes.</p> <p>The <a href="#">Starfall</a> and <a href="#">Khan Academy Kids APPs</a> can be used for practice.</p> <p><a href="#">Education.com</a> has resources directly related to the standards.</p> <p>Videos including from <a href="#">Numberblocks</a> can help to make instruction memorable and engaging.</p> <p>Videos, such as <a href="#">this</a> can be used for practicing the English numbers of to 20.</p>

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		<p><u>English</u> Students are able to understand, "How many _____?" questions.</p>	<p><u>English</u> Students will practice using the following English sentence structures,</p> <p>" ____ is bigger than ____."</p> <p>" ____ is smaller than ____."</p> <p>"There are more (noun)"</p> <ul style="list-style-type: none"> <li>- Students are developing the ability to represent addition or subtraction problems using different means, for example drawing, clapping, using physical objects, writing equations, or acting out situations.</li> </ul> <p>(21st century skill of creativity and initiative practiced here.)</p> <p style="color: green;">This will be consolidated in the next unit.</p> <p><u>Literary Development</u></p> <ul style="list-style-type: none"> <li>- Students able to write the numbers 0 - 20</li> </ul> <p><u>Literary Development (Differentiation)</u></p> <ul style="list-style-type: none"> <li>- Students developing reading ability are able to read counting and comparison questions.</li> </ul>	<p>problems using a creative method of their choice, students can produce their own work samples individually or in pairs of small groups (21st century skill of comparison) to compare with the class.</p>	<p>It is important to build up strength and confidence with the numbers in English so as to allow math to be studied using English as the method of instruction with greater ease.</p> <ul style="list-style-type: none"> <li>- Students may also struggle with the physical counting process - remembering which items they have counted and which are still to be counted.</li> </ul> <p>If this is the case, specific counting strategies can be taught, for example ticking off an object already caught, or choosing a starting item and following a particular order. This will act as a support to make the counting process more accessible to students.</p> <ul style="list-style-type: none"> <li>- Students may be struggling with the comparison of numbers.</li> </ul> <p>If this is the case, students can be supported by examples of larger more tangible objects to make the process more vivid.</p> <p>Many episodes of <a href="#">Numberblocks</a> also make number comparisons very visual. These can be watched and comparisons noticed and then practiced in real life by students, when they do occur.</p>	
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			<ul style="list-style-type: none"> <li>- Students developing writing ability are able to write these.</li> </ul>			<p>The visual element and then hands on activity makes the learning more concrete, apply to more sense, and hence be more impactful.</p> <ul style="list-style-type: none"> <li>- Finally students may struggle with comparing two digits.</li> </ul> <p>Remediation here can take place through first doing examples, putting the digit alongside the actual physical number of objects, and doing separate questions in which students do further practice just drawing a number of objects or dots for one number. As they grow more confident with these two skills, they can then put them together for use comparing two digits until they are ready to do so more automatically.</p> <p><u>Extension</u></p> <p>Students who have a more developed number sense, can practice the higher thinking skill of application, applying their skills to comparing bigger numbers.</p> <p>They can also further practice creativity by designing a wider range of their own counting and comparison problems.</p> <p>Together, these are important as they practice higher skills on Bloom's Taxonomy.</p>	
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<p>Second Unit (1 month)</p>	<p>“From Number Sense to Operations”</p> <p>This unit furthers the work from the previous unit and digs deeper into arithmetic.</p> <p><a href="#">K.OA.A.1</a>  <a href="#">K.OA.A.2</a>  <a href="#">K.OA.A.3</a>  <a href="#">K.OA.A.4</a>  <a href="#">K.OA.A.5</a></p>	<ul style="list-style-type: none"> <li>- Ability to count forwards to and backwards from 10 with fluency.</li> <li>- Awareness of the relationship between a written digit and a physical number of objects or number of counts (for example, the digit 7 refers to 7 objects or 7 occurrences of an event).</li> <li>- Familiarity with the written digits for the numbers.</li> <li>- Appreciation of the fact that if you have a known number of objects or occurrences of an event and add another one, you can simply count one more, you don't need to begin counting again. Similarly, if you have a known number of objects and lose one, you can count back one. (Foundational number sense for the fundamentals of addition and subtraction.)</li> </ul> <p><u>English language (students are developing English as a second language):</u></p> <ul style="list-style-type: none"> <li>- Numbers in English.</li> <li>- Instructional verbs relating to strategies</li> </ul>	<ul style="list-style-type: none"> <li>- Students are able to add and subtract within 5 with confidence and little thinking time needed.</li> <li>- Students are able to represent addition or subtraction problems using different means, for example drawing, clapping, using physical objects, writing equations, or acting out situations. (21st century skill of creativity and initiative practiced here.)</li> <li>- <u>English language development (students are learning English as their second language)</u> <ul style="list-style-type: none"> <li>- Students understand the terms “add”, “plus”, “subtract”, “minus” and “equals” and are able to use them to say a full sentence answer to and ask others’ questions.</li> </ul> </li> <li>- Students are able to comprehend simple questions delivered in</li> </ul>	<ul style="list-style-type: none"> <li>- Quizzes on Kahoot! for arithmetic, number pairs to 10, and understanding word problems.</li> <li>- Project activities where students represent sums in methods of their choice to express creativity, and then show to the class.</li> <li>- Arithmetic games. For example, <ul style="list-style-type: none"> <li>• Dice board game. When a student lands on a square, they move that number forward.</li> <li>• “Snap” card game. Students match cards that add to 10.</li> </ul> </li> </ul> <p>These games will help develop the 21st century skills of communication (and social skills) as students play with their friends.</p> <ul style="list-style-type: none"> <li>- Student lead activities. As students become ready. <ul style="list-style-type: none"> <li>• Students write their own question sheets and problems as they become able. (This will also stretch higher level students.)</li> </ul> </li> </ul>	<p>21st century skill development can be noted by observation throughout.</p> <ul style="list-style-type: none"> <li>- Portfolio of the different models students have created to represent arithmetic problems. (For example, photos or videos of them at work or the representation, the kept physical work if they have done a drawing.)</li> <li>- Two final representations, which students make under teacher observation, during a “stations” session at the end of the unit. to go with the above portfolio.</li> <li>- Final Kahoot quiz and assessment sheets at the end of the unit.</li> <li>- Final sets of questions students set for each other, working in pairs.</li> <li>- Student centered project. Students take some of their own data based on their interests. For example, if they are interested in soccer, maybe they could record the number of goals their soccer team scores in matches. The teacher can support in helping students choose data as necessary.</li> </ul>	<p><u>Next step:</u> Students will extend work with addition upwards towards 20.</p> <p>They will begin to apply the skills in a greater range of situations. (Further real life questions; measurement in relation to the measurement part of the K mathematics curriculum/standards.)</p> <p><u>Remediation:</u> More individual time can be spent with students who need it.</p> <p>For arithmetic, modeling and scaffolding can be provided from the use of tangible objects with examples supported by the teacher. The use of tangible objects helps make the learning more visual and has a deeper sensory impact. In addition, further examples can be used from the student's lives, making it more meaningful for them.</p> <p>For the representation of arithmetic operations, examples of methods for showing them can be shown - for example the teacher more explicitly shows how the students themselves could use their fingers or a drawing. The students can follow, and build up to doing it themselves. The scaffolded support here, allows students to more slowly create their own representations.</p>	<p><a href="#">Kahoot!</a> can be used for quizzes.</p> <p>The <a href="#">Starfall</a> and <a href="#">Khan Academy Kids APPs</a> can be used for practice.</p> <p><a href="#">Education.com</a> has resources directly related to the standards.</p> <p>Videos including from <a href="#">Numberblocks</a> can help to make instruction memorable and engaging.</p>
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		<p>of representing an arithmetic operation: "Draw"; "Show me"; "Clap"; "Make".</p> <ul style="list-style-type: none"> <li>- Ability to follow simple questions delivered in English relating to adding to increasing and decreasing in amount, with contextual and visual support for meaning if necessary.</li> </ul>	<p>English relating to adding to increasing and decreasing in amount, with contextual and visual support for meaning if necessary.</p> <p><i>Differentiation - students with more experience in English:</i></p> <ul style="list-style-type: none"> <li>- Students are able to create and articulate their own word problems in English.</li> <li>- Students are able to identify number pairs that add to 10, for both addition and subtraction, using a method of their choice.</li> <li>- Students practice their English expression through role play, with scaffolded support as necessary. (Also 21st century skill of communication).</li> <li>- Students are able to play games fairly with friends to work together to progress their learning. (21st century skills of collaboration and communication).</li> <li>- Students practice creating their own problems and then presenting to class (21st century skills</li> </ul>	<ul style="list-style-type: none"> <li>- Role play practiced during the unit, for example in a restaurant, with students practicing their English with appropriate scaffolding, alongside arithmetic.</li> </ul>	<p>(This activity helps develop the 21st century skill of initiative.)</p> <p>They then create their own arithmetic equations or answer questions from this, based on their independence and needs. Work can be presented to classmates to develop 21st century skills of communication and leadership.</p>	<p><u>Extension:</u> Students with more developed arithmetic and skills and number sense can begin applying their knowledge to situations with bigger numbers independently. They can be given problems to work on individually or with peers, with the teacher supporting as necessary. This is important because it allows them to practice the higher order skill of applying, applying their knowledge to bigger numbers; also independence in learning and 21st century skill of communication.</p> <p>To give the opportunity for creation, they can also design their own problems, using writing if they are ready, and if not, orally, or using pictures. This will be a useful activity because it is "creating", high in Bloom's Taxonomy.</p>	
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			<p>of initiative, leadership, creativity and communication).</p> <ul style="list-style-type: none"><li>- <u>Literacy skills:</u> Students will be able to read and write the digits 0 - 10, and the symbols, "+", "-", "." and "=".</li></ul> <p><u>Literacy Skills</u> <u>Differentiation</u></p> <ul style="list-style-type: none"><li>- <i>Students who have begun to develop reading and writing can read (and write if they are ready) simple arithmetic word problems, or practice writing related to their roleplay.</i></li></ul>				
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<p><b>Third Unit (1 Month)</b></p>	<p>“Consolidation, Upward Toward 20 and Category Comparison”</p> <p>This unit will consolidate arithmetic within 10 as students may still need some support here to deepen an understanding of arithmetic at the beginning of its study, to guide them in understanding it and seeing its purpose later. As students are becoming more confident, we extend towards 20 with arithmetic work.</p> <p>We consider sorting and then ordering by count, as another application of developing number sense.</p> <p><a href="#">K.OA.A.1</a>  <a href="#">K.OA.A.2</a>  <a href="#">K.OA.A.3</a>  <a href="#">K.OA.A.4</a>  <a href="#">K.OA.A.5</a></p> <p><a href="#">K.NBT.A1</a></p> <p><a href="#">K.MD.B3</a></p>	<ul style="list-style-type: none"> <li>- Developing confidence in being able to represent addition and subtraction problems within 10, using a range of different methods.</li> <li>- Developing confidence in being able to answer word problems for addition and subtraction within 10.</li> <li>- Developing confidence in being able to add and subtract within 5, with little thinking time.</li> </ul> <p style="color: purple;">The above three skills will continue to be consolidated throughout this unit and beyond, as necessary.</p> <ul style="list-style-type: none"> <li>- Developing awareness of what addition and subtraction are doing. That is, the fact that two numbers added together will make a larger number, and a larger number can be decomposed into two smaller numbers.</li> <li>- Cognitive ability to categorize by a range of different criteria. (Colour; size; shape; specific noun - for example, apple ;</li> </ul>	<ul style="list-style-type: none"> <li>- Students are able to add and subtract within 5 with confidence and little thinking time needed.</li> <li>- Students are able to represent addition or subtraction problems using different means, for example drawing, clapping, using physical objects, writing equations, or acting out situations. (21st century skill of creativity and initiative practiced here.)</li> <li>- Students are able to identify number pairs that add to 10, for both addition and subtraction, using a method of their choice.</li> <li>- For a number between 0 and 19, students are able to decompose it into a group of ten ones (a “ten”) and a further number of separate ones (“units”) and use objects, a drawing or another creative method of their choice to represent it.</li> </ul>	<ul style="list-style-type: none"> <li>- Students can continue with activities as in the previous unit, for arithmetic development.</li> <li>- For place value questions, students can have individual cards, with the numbers 0 - 10 each written on one. They can then hold up the correct two cards.</li> <li>- For place value questions, students can practice the writing of the equations on mini whiteboards, with everyone showing the teacher.</li> <li>- Kahoot! quizzes can be used for both place value and categorization and number of objects in different categories.</li> <li>- Stations activities can be used with worksheets, APP’s (category comparison and place value) and opportunities for students to be writing or asking their own questions of each other, for place value, or creating them with drawings or physical objects for ordering categories by count.</li> </ul>	<ul style="list-style-type: none"> <li>- Arithmetic projects from the previous unit can be continued as necessary.</li> <li>- Students can add to their portfolios physical work and photo or video documentation of place value problems or category comparison and ordering problems they have written or created, creative place value decompositions, or category sorting and then ordering by count problems they have done on paper, or video, as well as the record of writing and English language practiced.</li> </ul>	<p><u>Next Steps</u></p> <p>Arithmetic will need to continue to be extended for future purposes. The place value work can lead into directly adding 10 to a number between 1 and 9 (for example, “10 + 3 = _____.”) and then to more general arithmetic to 20.</p> <p>The arithmetic development will be a continual process.</p> <p>Alongside this, students will now diverge away from direct number work a little, to focus on measurement, which is also part of the curriculum, later also returning to geometry and shapes.</p> <p><u>Remediation</u></p> <ul style="list-style-type: none"> <li>- Students may continue to need support with the arithmetic.</li> </ul> <p>Further individual support can continue as necessary as before.</p> <p>APP’s can continue to be used for further practice alongside direct work with the teacher.</p> <ul style="list-style-type: none"> <li>- Students may need further support with the place value to build up the confidence and foundation here.</li> </ul>	<p><a href="#">Kahoot!</a> can be used for quizzes.</p> <p>The <a href="#">Starfall</a> and <a href="#">Khan Academy Kids APPs</a> can be used for practice.</p> <p><a href="#">Education.com</a> has resources directly related to the standards.</p> <p>Videos including from <a href="#">Numberblocks</a> can help to make instruction memorable and engaging.</p> <p>There are also a number of great videos for introductory place value. <a href="#">This</a> for example.</p> <p><a href="#">Connecting cubes.</a></p> <p><a href="#">Cuisenaire rods.</a></p>
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		<p>type of noun - for example, fruit).</p> <p><u>English language development</u> The names of different common categories of noun or adjective - "size", "color", "shape", "fruit" - and nouns or adjectives within these - "big", "small", "red", "yellow", "square", "apple".</p> <p><u>Literacy</u> Ability to write numbers 0 - 20</p>	<p>Here, students can also have the opportunity to create their own methods of representation for the (21st century skills of initiative and creativity, and then present them to their classmates for leadership and communication. Students can work together in doing examples for social skills and collaboration).</p> <p>- For at least three different categories of objects, students are able to sort objects into groups, count these groups and then order them by count.</p> <p><u>English language development:</u></p> <ul style="list-style-type: none"> <li>- Students can say the sentence "(number 11 - 18) is 10 and (unit number)."</li> <li>- Students are able to say the English sentence, "There are (number) (category name)."</li> </ul> <p>- <i>Differentiation - students with more experience in English:</i></p> <ul style="list-style-type: none"> <li>- Students are able to use a</li> </ul>	<p>Teachers can be observing to obtain data. During some stations activities, teachers can also be working more directly with a small group to ask more direct questions.</p>		<p>More direct teacher intervention can be given as necessary.</p> <p>More work can be done with videos such as <a href="#">this</a> as these apply to multiple senses and the music and video combination can make it more memorable.</p> <p>Greater emphasis can be put on work with cuisenaire rods and connecting cubes as these can help make the concept more concrete initially to more slowly build up to decomposing numbers without.</p> <p>- Students may be struggling with English demands of the unit - the names of different categories of adjective or noun and the items within these.</p> <p>Small group intervention can be done, with receptive games and activities used to build confidence with the words and scaffold up towards being able to understand the words to answer questions and use them in sentences to answer questions.</p> <p>- Personalized writing intervention can be given to those who might need it.</p>	
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			<p>continuous monologue to present work they have done on categorizing, in English.</p> <p><u>Literacy Skills</u></p> <ul style="list-style-type: none"> <li>- Students are able to write arithmetic equations splitting a number between 11 and 19 into 10 and a number of units.</li> </ul> <p>For example, "17 = 10 + 7"</p> <ul style="list-style-type: none"> <li>- Students are able to follow the teacher to write the sentence, "There are (number) (categories)" and practice writing the names of different categories in the process.</li> </ul> <p><u>Literacy Skills</u> <u>Differentiation</u></p> <ul style="list-style-type: none"> <li>- <i>As students become ready, they are able to read problems asking for categorisation.</i></li> </ul> <p><u>Further Note on 21st Century Skills (for previous two units also):</u></p> <ul style="list-style-type: none"> <li>- Students can have the opportunity to take photos</li> </ul>			<p><u>Extension</u></p> <ul style="list-style-type: none"> <li>- Students can continue to practice creativity and application through creating their own arithmetic problems and applying their knowledge to those with bigger numbers.</li> <li>- Students can practice their application of developing place value knowledge (for higher order thinking), and collaboration and social skills if they work with a partner, to do place value decompositions above 20 if they are ready.</li> <li>- Students can practice category comparison and ordering by count questions with bigger numbers and in further real life situations, for example, the number of people with different food preferences as it might be used to compare how popular different options are and to make food orders (this could also be the foundation of a small project.) This practices higher thinking as students are applying their knowledge to more</li> </ul>	
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			or videos of project work, and log the process. This can develop media literacy and technology literacy.			complex situations, and also seeing how the concept can be used in real life.	
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