

<p><b>Lesson 1:</b></p>	<p><b>Key Learning:</b></p> <p>To combine two quantities to find the total</p>	<p><b>Key vocabulary:</b></p> <p>Part, whole, plus, altogether, is equal to</p>
<p><b>Suggested Do Now:</b></p>	<p><i>Introducing the Big Picture</i></p> <p>Introduce the Big Picture and provide time for pupils to discuss what they can see in the picture. Take feedback about their thoughts. Sing the song 'Down to the Station'</p>	<p><b>Transition ideas:</b></p> <p>Adult to clap a series of claps and pupils count the number of claps heard.</p>
<p><b>New Learning:</b></p>	<p><i>Combining two sets to add</i></p> <p>Introduce the problem. 'The train conductor needs our help. He has got into a bit of a pickle with the trains and he isn't sure whether his train can pull all the passengers. His train can only pull 20 passengers in two carriages.'</p> <p><b>[Teacher note: You could use 20 chairs in two groups of ten to represent the two carriages and model this with pupils. If this is not possible using concrete manipulative such as counters or cubes will suffice.]</b></p> <p><b>?</b> <i>There are six passengers in one carriage and three passengers in the other carriage.</i> Select six pupils to sit in one of the carriages and three to sit in the other.</p> <p><b>?</b> <i>How can we find out if the conductor can pull these two carriages?</i>  <i>We would have to count how many there are altogether to find the whole.</i></p> <p>Take feedback and share pupil's strategies. Using Resource 1 enlarged or a large part-whole model marked out on the floor, model moving the groups to their parts. If this is not possible then use cubes and a paper part-whole model. Explain that these are our parts and establish how many passengers are in each part. Repeat the question to remind them of their suggestions around finding the whole, or how many there are altogether. Move the two parts to the whole, emphasising moving the three passengers to the whole first. This is important for the Develop Learning. Establish a strategy for finding the whole; some pupils may count on from the one group, others will need to recount them. Model the strategy that best suits your pupils.</p> <p> <i>Three add six is equal to nine.</i> Role play the Talk Task using manipulatives, if you have plastic figures, then this would work equally well.</p>	<p><b>Resources:</b></p> <p>Resource 1 Masking tape or a large part-whole model Task 1a Counters, cubes etc. or real world objects</p>
<p><b>Talk Task</b></p>	<p><i>How many people on two carriages using a part-whole model</i></p> <p>Pupils to choose a carriage from Task 1a each and place a cube or counter on each passenger. Then they count the number of passengers, moving their manipulatives to the part-whole model and then combine them to find the total.</p> <p><b>Pupil A:</b> <i>I have two passengers. One part is two.</i> <b>Pupil B:</b> <i>I have three passengers. The other part is three.</i> <b>Together:</b> <i>Two add three is equal to five. There are five passengers altogether. The whole is five.</i></p>	<p><b>Sentence Structure:</b></p> <p>One part is ___. The other part is ___.</p> <p>There are ___ altogether.</p> <p>The whole is ___.</p> <p>___ plus ___ is equal to ___.</p>

**Recognising commutativity by counting on from the larger number**

**Suggested  
Develop Learning:**

Recap the story from earlier and explain that we moved the three passengers to the whole first and then combined the six passengers—use the language that matches the strategy used e.g. counting on from six or counted to three and then added six.

**?** *Does it matter which order we did addition in? What if we began with the greater number, six, and then added on three?*

Allow pupils to discuss this and then take feedback on their ideas.

Model the story again with the same number of pupils and ensure pupils see that the number of passengers in each part has not been altered. Remind pupils that last time we began with the three but this time we will begin with the greater number, six. Repeat moving the two parts to the whole and then count on from six to three to find the total.

 *Six add three is equal to nine.*

**?** *What do you notice about our answer?*

 *It is the same as last time.*

Repeat with another example such as; four passengers and five passengers. Model moving the four passengers to the whole first and counting on and then model it again, this time moving the five passengers to the whole first and establishing that the answer is the same.

**[Teacher note: If you have an additional adult, then you could have them using two sets of coloured cubes to represent the two sets, or a coat hanger and pegs. This will support pupils understanding in seeing that the numbers have not been altered but they have just been rearranged.]**

**Suggested Focus** *Adding two carriages together*

**Group activity/  
Independent  
Learning:**

In pairs, give pupils Task 1a. Pupils to explore choosing two carriages to add together to establish which carriages the conductor can pull using a part-whole model and manipulatives. Remind pupils that the train can only pull a maximum of 16 people in both carriages.

**Plenary:** *Have you found all possibilities?*

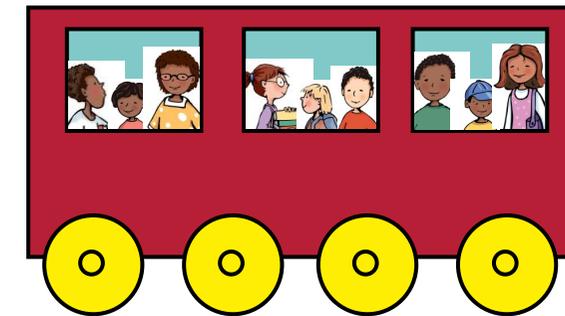
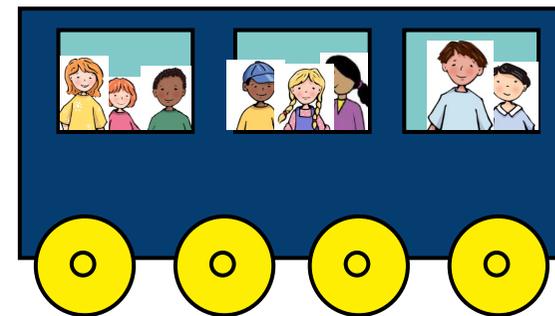
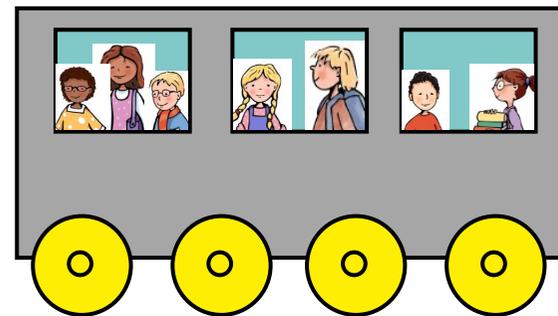
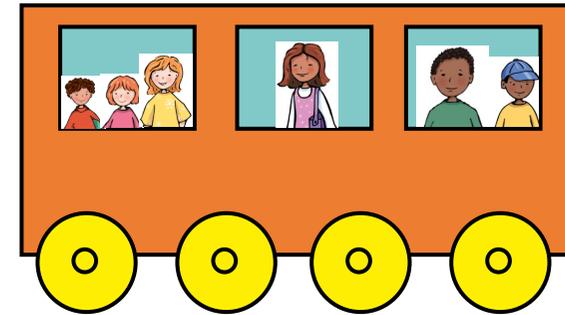
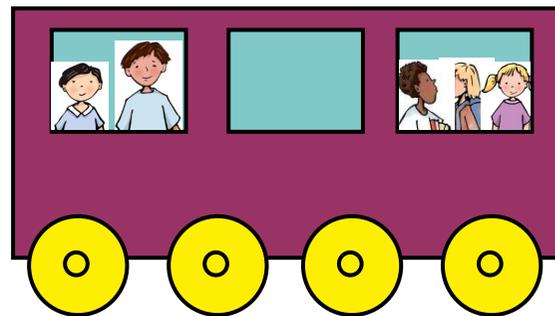
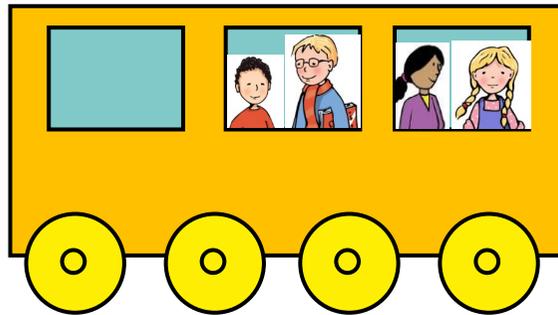
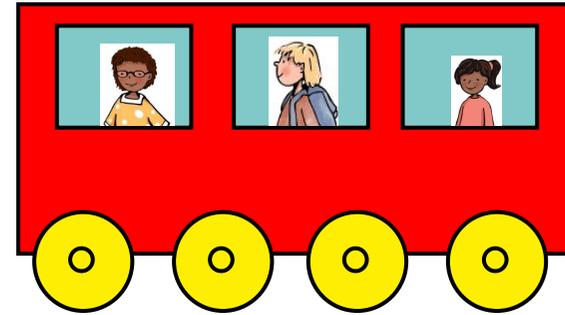
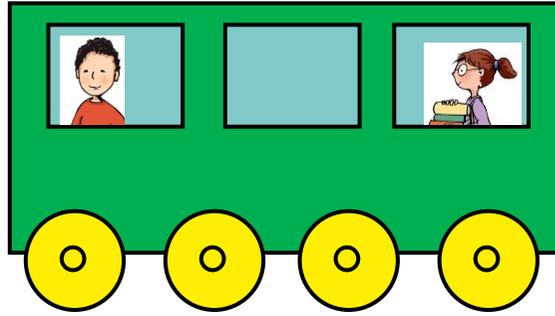
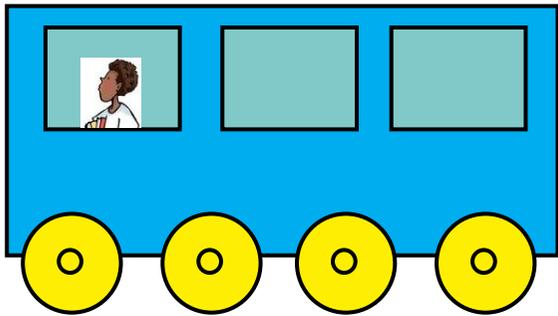
Using the carriages the pupils used, ask pupils to share a combination that they found the train could pull and ask them to model it on a part-whole model using manipulatives.

**?** *How do we know we have found all the combinations?*

Share pupils strategies for finding all the combinations. If there is time, explore any that pupils had not suggested.

**Adapting and  
differentiating:**

- ◇ Provide pupils with one of the carriages so they are only choosing a second carriage.
- ◇ Provide pupils with two sets or carriages so the focusing on just the addition
- ◇ Provide pupils with partially completed part-whole models that reflect possible combinations.



<p><b>Lesson 2:</b></p>	<p><b>Key Learning:</b></p> <p>To explore addition by adding on</p>	<p><b>Key vocabulary:</b></p> <p>First, then, now, plus, is equal to</p>
<p><b>Suggested Do Now:</b></p>	<p><i>Estimate and check</i></p> <p>Display a set of cubes or counters, or other real world objects and ask the pupils to estimate how many objects there are, recording their estimates to refer back to. Select a pupil to count the number of objects and look back at who was closest with their estimate.</p>	<p><b>Transition ideas:</b></p> <p>Months of the year</p>
<p><b>New Learning:</b></p>	<p><i>Adding on with a number track</i></p> <p>Explain that the conductor now has come to work and has a different problem. There is a family of four on the train already. The conductor has different sized families, how many could he have on his carriage? Show the pupils pictures of the different families (Resource 2)</p> <p><b>?</b> <i>How can we work out which families the conductor can fit on?</i> Take feedback from the pupils. If pupils do not think of a suitable strategy then set up ten chairs and select four pupils to sit down. Ask a pupil to select a family from Resource 2 to add to the carriage and select that number of pupils to join the carriage. Introduce the number track, (Resource 3) if there is enough space, you could mark out a large number track on the floor for the pupils to stand in. If this is not possible then using a small number track and manipulatives would suffice.</p> <p><b>?</b> <i>How many passengers were in the carriage first?</i>  <i>First there were four passengers in the carriage.</i> Place four pupils or four cubes/counters, onto the number track explaining that that is how many were in the carriage.</p> <p><b>?</b> <i>Then how many were in the family we added on?</i> Model adding on that number of manipulatives to the number track.</p> <p><b>?</b> <i>Now how many passengers are on the train?</i> Repeat the first, then, now story using the numbers chosen.  <i>Four plus ___ is equal to ___</i> <i>[Teacher note: You could use two ten frames (Resource 4) instead of a number track, depending on which your pupils are more confident with using.]</i></p>	<p><b>Resources:</b></p> <p>Resource 2 Cubes, counters etc. or real world objects</p> <p>Resource 3 Resource 4 (optional) Masking tape for marking out a large number track or ten frame (optional)</p>
<p><b>Talk Task</b></p>	<p><i>First Then Now story</i></p> <p>In pairs, pupils to choose a family to add onto the four passengers and create a first, then now story using a number track or tens frame.</p> <p> <i>First there were four passengers. Then ___ joined the carriage. Now there are ___ passengers.</i></p> <p> <i>Four plus ___ is equal to ___</i></p>	<p><b>Sentence Structure:</b></p> <p>First... Then... Now... ___ plus ___ is equal to ___</p>

**Adding more than two families on**

**Suggested**

Select pairs of pupils to share their first then now stories and ask them to model these on the number track or ten frame.

**Develop Learning:**

*[Teacher note: If pupils are confident with adding on a number track then continue with the Develop Learning. If not then continue modelling as in the New Learning, exploring the different families that could fit onto the carriage.]*

Explain that now there is a family of eight on the carriage.

**?** *How will that change the total on the carriage?*

Repeat the exploration of using a number track to add as in the New Learning, building up the first, then, now story alongside the number track.

**?** *Could we add another family onto the train?*

Repeat the modelling of a number track beginning with eight cubes/counters and then choosing two families to add to the number track, adding one family on at a time. Use pupils to add the cubes to the number track to represent the family chosen.

Use the sentence structures to support pupil's understanding.

**?** *How many passengers were in the carriage first?*

 First there were eight passengers on the train, then \_\_\_ got on. Then \_\_\_ more passengers got on. Now there are \_\_\_ passengers on the carriage.

 Eight plus \_\_\_ plus \_\_\_ is equal to \_\_\_

**Suggested Focus**

*Exploration of possible additions*

**Group activity/**

Provide pupils with a range of families (Resource 2) for them to add one or two of the families onto the eight passengers. Pupils to use manipulatives and a number track to support pupils in adding on.

**Independent**

**Learning:**

**Plenary:**

*Agree or disagree?*

Show the pupils six cubes and tell them the story.

**?** *First there were six passengers on the train. Then five more passengers got on. (Model putting five more cubes in the carriage. Alongside a number track.) Now there are 12 passengers on the train. Am I right? Why not?*

Share pupils ideas and ask them to use the manipulatives to support their responses. Ask the pupils to retell the story so that it is correct.

**Adapting and differentiating:**

- ◇ Pupils could continue with just exploring adding one family onto the four passengers as in the Talk Task.
- ◇ Provide pupils with combinations of families to add together so they are not choosing families.
- ◇ Ask pupils to create a maths story around the numbers explaining what the passengers are doing or where they are going.

<p><b>Lesson 3:</b></p>	<p><b>Key Learning:</b></p> <p>To explore subtraction as partitioning</p>	<p><b>Key vocabulary:</b></p> <p>Subtract, minus, part, whole, is equal to</p>
<p><b>Suggested Do Now:</b></p>	<p><i>One more or one less</i></p> <p>Prepare three or four towers of cubes, each made up of fewer than 20 cubes. Show a tower to the pupils and ask them to find either one more or one less than the tower. Select pupils to physically remove or add a cube to support their answer.</p>	<p><b>Transition ideas:</b></p> <p>Days of the week</p>
<p><b>New Learning:</b></p> <p><i>[Teacher note: Do not use 'take away' during this lesson as subtraction in this lesson does not involve objects being 'taken away'. Pupils instead are exploring what happens when you start with the whole and you subtract one of the parts.]</i></p>	<p><b>Subtraction on a part-whole model</b></p> <p>Introduce today's problem: the conductor is needing to move some passengers from one carriage to another. Explain that there are nine passengers (Resource 5) in the carriage and he needs to move five passengers to the other carriage.</p> <p><b>? How can we find out how many passengers are left in the carriage?</b> Share pupils' ideas as to how this could be solved. Explain that nine is the whole using nine cubes or counters on a part-whole model (Resource 1).</p> <p><b>? What is one of my parts?</b>   <i>One of your parts is five because there are five passengers moving.</i> Establish that we don't know the other part. Model placing nine cubes into the whole and explain that this represents the nine passengers in the carriage. Model moving five cubes to one of the parts and that represents the moving passengers.</p> <p><b>? What is the other part?</b>   <i>We know that the other part is four. There are four passengers left in the carriage.</i>   <i>Nine subtract five is equal to four.</i> At this point move the four remaining cubes into the other part on the part-whole model. Repeat with other examples to show the whole being split into the known and unknown part. Role play the Talk Task.</p>	<p><b>Resources:</b></p> <p>Resource 5</p> <p>Resource 1</p> <p>Cubes or counters</p> <p>Dice (one per pair)</p>
<p><b>Talk Task</b></p>	<p><b>Using a part-whole model for subtraction</b></p> <p>Pupils to work in pairs subtracting from the whole. Pupil A places nine cubes on a part-whole model (Resource 1). Pupil B rolls a die e.g. 3, to show the number of passengers the conductor moves. Pupil A subtracts that number into one part and Pupil B identifies the number of passengers left, moving the cubes into the other part.</p> <p><b>Pupil A:</b> <i>My whole is nine and one of my parts is three.</i></p> <p><b>Pupil B:</b> <i>(Moves the three to one part and then six to the other part.) There are six passengers left.</i></p> <p><b>Together:</b> <i>Nine subtract three is equal to six.</i></p>	<p><b>Sentence Structure:</b></p> <p>My whole is ____</p> <p>____ is my part</p> <p>____ is my other part</p> <p>__ subtract __ is equal to ____</p>

**Explain subtraction**

**Suggested  
Develop Learning:**

*[Teacher note: This is an opportunity for pupils to lead the learning and to consolidate their understanding. It would be worth selecting confident pupils to explain their subtractions. However, if you feel your pupils are not ready for this then continue to model as in the New Learning with more examples.]*

Select a pair to share their Talk Task and model exactly what they did. Encourage the pupils to explain each step that they do using the sentence structures.

Ask pupils if anyone else completed the same one.

**?** *Did you get the same answer?*

Continue to select pupils to model their partitioning to allow for more opportunities to consolidate their learning.

**Suggested Focus**

*Continuing to explore subtraction from 8*

**Group activity/  
Independent  
Learning:**

Pupils now explore how answers would differ if there were only eight passengers in the first carriage. This is a continuation of the Talk Task and should follow the same structured paired work.

**Plenary:**

*What do you notice?*

Show a rod made up of three red cubes and two blue cubes.

**?** *What is can you tell me about the rod? Can you tell me an addition or a subtraction equation?*

 *Three add two is five. Two add three is five. Five subtract two is three. Five subtract three is two.*

Ask pupils when they have a suggestion to come and use the rod of cubes to support their answer.

**Adapting and  
differentiating:**

◇ Provide pupils with completed part-whole models showing the parts completed and pupils discuss the subtraction that has happened.

◇ Explain to the pupils that they can have any number of passengers starting on the train and any number of passengers moving carriage but there must always be 3 passengers left. How many passengers could there be starting in the carriage and how many could be moved?

<p><b>Lesson 4:</b></p>	<p><b>Key Learning:</b></p> <p>To explore subtraction as take away</p>	<p><b>Key vocabulary:</b></p> <p>First, then, now, take away, is equal to</p>
<p><b>Suggested Do Now:</b></p>	<p><i>How many have I got?</i></p> <p>Place a number of objects onto a ten frame. Select a pupil to say how many objects there are, counting them if necessary. Rearrange the objects and ask another pupil to explain how many there are. After a few times, alter the number of concrete manipulative and then repeat the rearranging.</p> <p><b>?</b> <i>How many are there now?</i></p>	<p><b>Transition ideas:</b></p> <p>One more than a given number to 20</p>
<p><b>New Learning:</b></p>	<p><i>Take away on a number track</i></p> <p>Introduce today's problem; the train conductor isn't sure how many people are left on the train. First there were seven people on the train. Then two people got off. Now how many people are left on the train? Ask pupils to discuss what they think is happening in the story and take feedback.</p> <p><b>[Teacher note: If pupils have responded well during the week to modelling with themselves, you could ask a pupil to model with other pupils what it would look like. If not then consider either modelling with them or using concrete manipulatives on a ten frame or number track.]</b></p> <p>Read <b>'First there were seven people on the train.'</b> and move nine cubes onto the number track (Resource 3) or ten frame (Resource 4) explaining these represent the seven people on the train. Repeat the second sentence with it <b>'Then two people got off'</b>.</p> <p><b>?</b> <i>What shall we do?</i></p> <p> <i>We need to take away two cubes.</i></p> <p>Select a pupil to remove two cubes from the number track.</p> <p><b>?</b> <i>Now how many are left on the train?</i></p> <p> <i>There are five people left on the train. Seven take away two is equal to five.</i></p> <p>Repeat with other examples beginning with nine passengers in the carriage. Role play the Talk Task.</p>	<p><b>Resources:</b></p> <p>Resource 3</p> <p>Resource 4 (optional)</p> <p>Cubes or counters</p> <p>Dice (one per pair)</p>
<p><b>Talk Task</b></p>	<p><i>Telling a first, then, now story</i></p> <p>In pairs, pupils to explore taking away from nine using a number track or ten frame and tell the first, then, now story. Provide pairs with nine cubes or counters, a die and a number track or ten frame.</p> <p><b>Pupil A:</b> <i>(Puts nine cubes on the carriage) First there were nine people on the train.</i></p> <p><b>Pupil B:</b> <i>(rolls a die to represent the number of people getting off and removes the number of cubes from the number track.) Then ___ people got off.</i></p> <p><b>Together:</b> <i>Nine take away ___ is equal to ___. Now there are ___ people on the train.</i></p>	<p><b>Sentence Structure:</b></p> <p>First... Then... Now...</p> <p>___ take away ___ is equal to ___</p>

*Pupils explaining and modelling their first then now story.*

**Suggested  
Develop Learning:**

*[Teacher note: This is an opportunity for pupils to lead the learning and to consolidate their understanding. It would be worth selecting confident pupils to explain their subtractions. However, if you feel your pupils are not ready for this then continue to model as in the New Learning with more examples.]*

Select a pair to share their Talk Task and model exactly what they did. Encourage the pupils to explain each step that they do using the sentence structures.

Ask pupils if anyone else completed the same one.

**?** *Did you get the same answer?*

Continue to select pupils to model their subtraction using taking away to allow for more opportunities to consolidate their learning.

Choose a pair's story and repeat it.

**?** *How could we show this as a picture?*

 *You could draw a picture of nine people and then have three people standing on a platform. Or draw nine people and then cross three people out.*

Allow pupils time to discuss their ideas with a partner about what the picture could look like. Draw an example picture and model using the picture to tell a 'first, then, now' story alongside the use of cubes or counters on a ten frame or a number track.

**Suggested Focus**

*Drawing a first, then, now picture*

**Group activity/  
Independent  
Learning:**

Pupils to draw a picture and then, using manipulatives and a number track, use it to tell a 'first, then, now' story to their partner around people on a train getting off.

**Plenary:**

*Sharing of stories*

Select some pupils to share their stories and ask them to model what they would look like using the number track.

Prompt the pupils using questions to explain what happened first, then, and now.

You could ask pupils if they can provide a context for their first then now story e.g. Are the people going to visit someone or somewhere? Why did they get off the train?

**Adapting and  
differentiating:**

- ◇ Provide pupils with pictures of some people to tell a 'first, then, now' story.
- ◇ Rephrase questions to use the inverse relationship between addition and subtraction e.g. First there were six people on the train. Then some people got off. Now there are three left. How many people got off the train?
- ◇ Ask pupils to contextualise their first, then, now story e.g. First there are five people on the train. Then four people are going to the beach and they get off, Now how many are left going to the cinema?

<p><b>Lesson 5:</b></p>	<p><b>Key Learning:</b></p> <p>To compare two sets of objects using 'more' or 'fewer'</p>	<p><b>Key vocabulary:</b></p> <p>More, fewer, is equal to, same, different, compare</p>
<p><b>Suggested Do Now:</b> <i>How many did I drop?</i></p> <p>Using counters or coins and a tin, drop a number of coins into a tin for pupils to hear and ask them to count how many they think you dropped. Count them out and check. Repeat a few times altering the number of coins you drop.</p>		<p><b>Transition ideas:</b></p> <p>One less than a given number to 20</p>
<p><b>New Learning:</b></p>	<p><b>Using more and fewer to compare</b></p> <p>Using Resource 6, explain that in one carriage there are three boys and two girls. Using two different coloured cubes or counters, ask pupils to use one to one correspondence to create a concrete representation, in a row, of the boys and another concrete representation of the girls, in a row underneath, Ensure that they are lined up to support one to one correspondence between the two rows.</p> <p><b>? How can we describe the two groups?</b>   <i>There are three boys and two girls.</i>          Challenge pupils to describe the two groups using the star words and repeat the question. Establish whether other star words can be used to describe the groups.</p> <p><b>? How can we find out if the conductor can pull these two carriages?</b>   <i>There are more boys than girls. There are fewer girls than boys.</i>          Repeat with other examples of comparisons e.g. six women and four men, five children with hats and two children without hats, three children with sweets and seven children without sweets.</p> <p>Role play the Talk Task.</p>	<p><b>Resources:</b></p> <p>Resource 6</p> <p>Cubes or counters</p> <p>Task 5b</p>
<p><b>Talk Task</b></p>	<p><b>Describing a comparison</b></p> <p>In pairs, each partner picks a handful of counters and places them in a line, one line of counters underneath the other. Pupils then compare the two amounts using the sentence structures to describe the comparison.</p> <p><b>Pupil A:</b> <i>My line of counters is greater than yours. I have more counters than you. You have fewer counters than me.</i></p> <p><b>Pupil B:</b> <i>My line of counters is less than yours. I have fewer counters than you. You have more counters than me.</i></p>	<p><b>Sentence Structure:</b></p> <p>___ is more than ___</p> <p>___ is fewer than ___</p> <p>___ is greater than ___</p> <p>___ is less than ___</p>

**Comparison on a number track**

**Suggested**

Using the same examples that were shared in the New Learning introduce the number track to support their comparisons, linking this to their number sense.

**Develop Learning:**

Place the three counters above the number track and the two counters beneath the number track. Ensure pupils see that these represent the three boys and two girls.

Through questioning establish that there are three boys and two girls.

**?** *How could we compare them now using the number track to help us?*

 *There are more boys than girls. Three is greater than two.*

 *There are fewer girls than boys. Two is less than three.*

Repeat again for the other examples used in the New Learning.

**Suggested Focus**

**Comparison on a number track**

**Group activity/**

Pupils to be given Task 5b. Pupils to work in pairs to choose two sets of passengers to compare e.g. boys/girls, hats/no hats, yellow tops/green tops, wearing bags/without bags etc. Pupils use counters and a number track to compare them using the sentence structures from the Develop Learning.

**Independent**

**Learning:**

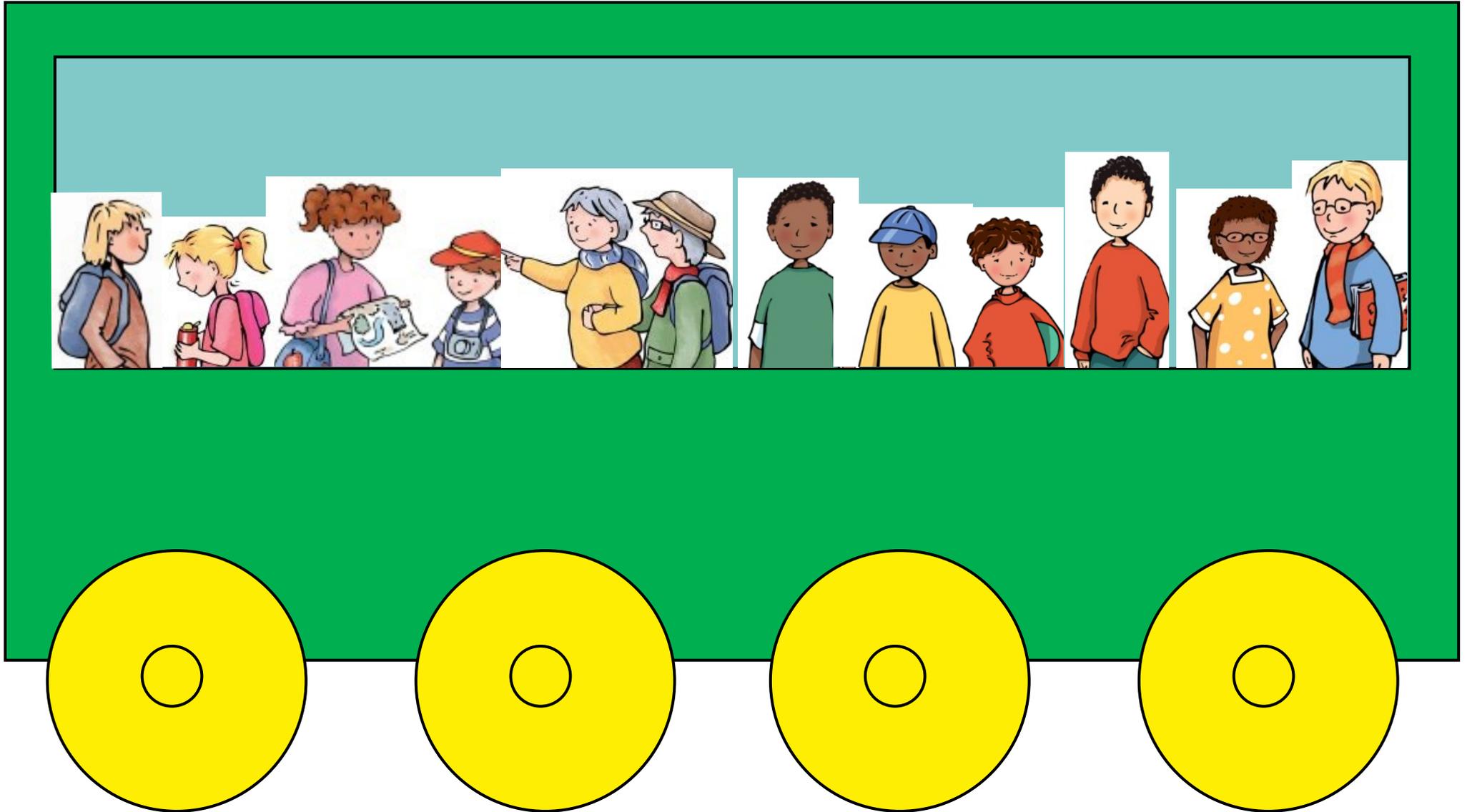
**Plenary:**

**Comparing three sets**

Show three concrete representations e.g. three cubes, five cubes and eight cubes, and explain these represent three different carriages. Discuss how we could compare these. Take feedback on pupils' thoughts which will be useful to inform tomorrow's New Learning.

**Adapting and differentiating:**

- ◇ Provide pupils with options for them to compare such as; people with bags and people without bags, people reading, people not reading, boys and girls.
- ◇ Provide pupils with a pictorial representation of the different sets to compare already lined up one to one and pupils can then place the concrete on top of the pictures and use this as a basis to compare.
- ◇ Pupils could still line them up without the number track to compare them.
- ◇ Pupils could compare different groups, e.g. people with green tops and people reading, people with yellow tops and people with blue or green tops.



Reception Unit 15

<p><b>Lesson 6:</b></p>	<p><b>Key Learning:</b></p> <p>To compare quantities using more or fewer</p>	<p><b>Key vocabulary:</b></p> <p>More, fewer, greater than, less than, is equal to, compare</p>
<p><b>Suggested Do Now:</b> <i>Estimate and check</i></p> <p>Display a set of cubes or counters, or other real world objects and ask the pupils to estimate how many objects there are, recording their estimates to refer back to. Select a pupil to count the number of objects and look back at who was closest with their estimate.</p>		<p><b>Transition ideas:</b></p> <p>Counting backwards to zero from a given number</p>
<p><b>New Learning:</b></p>	<p><i>Comparing between two sets</i></p> <p>Display three carriages (Resource 7). Introduce today's story: the train conductor now has three carriages and three families have decided to go out for the day together. Each family is going to travel in a different carriage. Tell pupils that the purple carriage has four passengers in it. Tell pupils that the yellow carriage has seven passengers in it. Tell pupils that the blue carriage has three passengers in it. Pupils create concrete representations of the number of passengers in each carriage alongside a number track (Resource 3) e.g. a row with four purple cubes, a row with seven yellow cubes and a row with three blue cubes.</p> <p><b>?</b> <i>How could we compare the carriages? What sentences could we use?</i> Encourage pupils to use the star words to generate sentences. If pupils do not generate their own, the following could be used. Each time a question is posed, explore strategies to find the answer.</p> <p><b>?</b> <i>Which carriage has the most passengers?</i></p> <p><b>?</b> <i>Which carriage has the least passengers?</i></p> <p><b>?</b> <i>What carriage has fewer passengers than the purple carriage?</i></p> <p><b>?</b> <i>Which carriages has one more passenger than the blue carriage?</i></p> <p>When exploring how to find or check the solution, place the rows of cubes under each other to compare. Role play the Talk Task.</p>	<p><b>Resources:</b></p> <p>Resource 7</p> <p>Resource 3</p> <p>Task 6a</p> <p>Task 6b</p> <p>Cubes / counters in different colours</p>
<p><b>Talk Task</b></p>	<p><i>Comparing between carriages</i></p> <p>In pairs, pupils to have Task 6a and each pick a carriage. Each pupils make a concrete representation of their carriage alongside a number track and then compare their carriage to their partners.</p> <p><b>Pupil A:</b> I have two passengers. My carriage has fewer passengers than your carriage.</p> <p><b>Pupil B:</b> I have five passengers. My carriage has more passengers than your carriage.</p> <p><b>Together:</b> Five is greater than two. Two is less than five.</p>	<p><b>Sentence Structure:</b></p> <p>___ is more than ___</p> <p>___ is greater than ___</p> <p>___ is fewer than ___</p> <p>___ is less than ___</p>

**Introducing a new problem**

**Suggested  
Develop Learning:**

Explain that three families have decided to go out for the day together. Each family is going to travel in a different carriage. Use Task 6b to model.  
Tell pupils that the red carriage has three fewer passengers than the green carriage.  
Tell pupils that the green carriage has one more passenger than the grey carriage.  
Tell pupils that the grey carriage has four passengers in it.

**? How many people went out for the day together?**

Discuss what they need to know to find out how many passengers there are in the red and green cars.  
Share their ideas about how they can find out how many are in the green car.  
Work together to find out how many people travelled in the green car using plastic people and record it on the car.  
Discuss what they need to know to find out how many people are in the red car. Share their ideas about how they can find out how many there are in the red car.  
Work together to find out how many people travelled in the red car and record this on the car.  
Refer back to the problem and ask whether we have answered the question.  
Ensure pupils recognise that we haven't answered the question and that they need to add the number of passengers in each car.

**Suggested Focus**

**Exploring the problem**

**Group activity/  
Independent  
Learning:**

Using Task 6b, ask pupils to explore the problem and create concrete representations of the number of passengers in each car before finding out how many there are altogether.  
The red car has three fewer passengers than the green car  
The green car has one more passenger than the grey car.  
The grey car has four passengers.

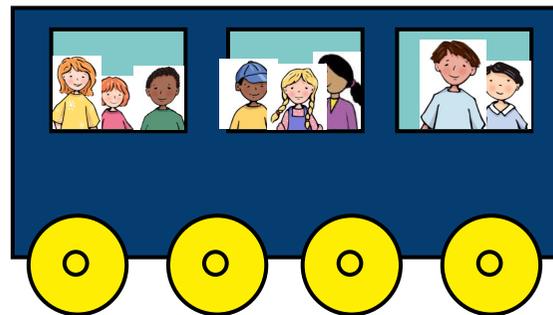
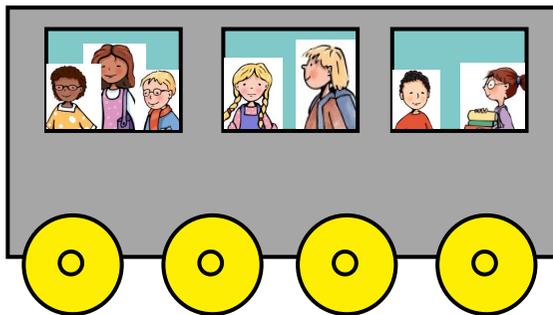
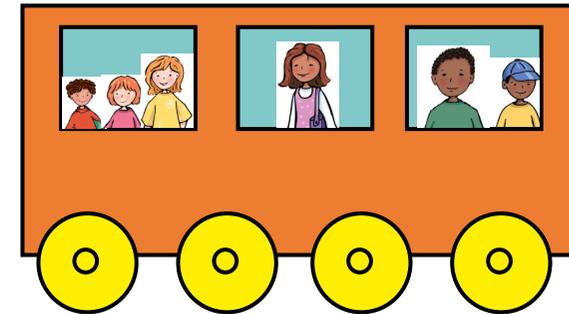
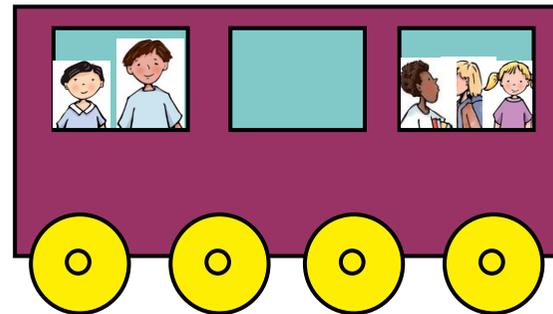
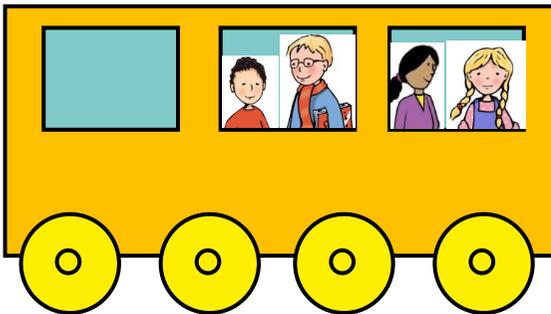
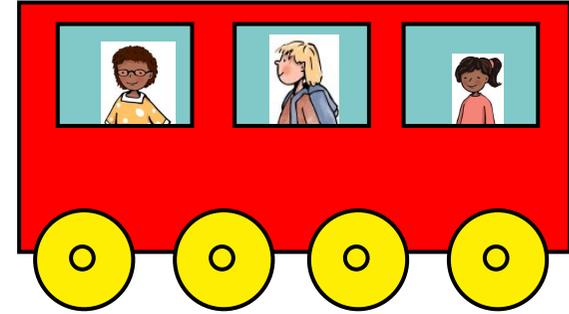
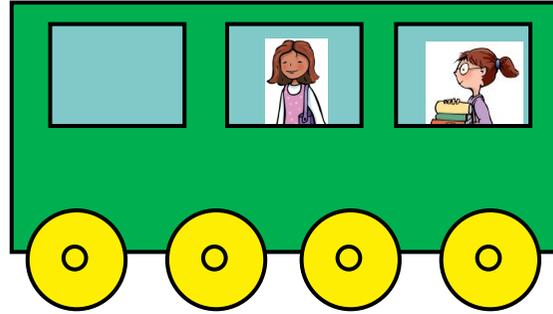
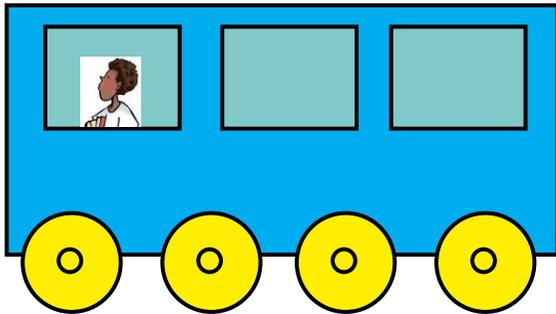
**Plenary:**

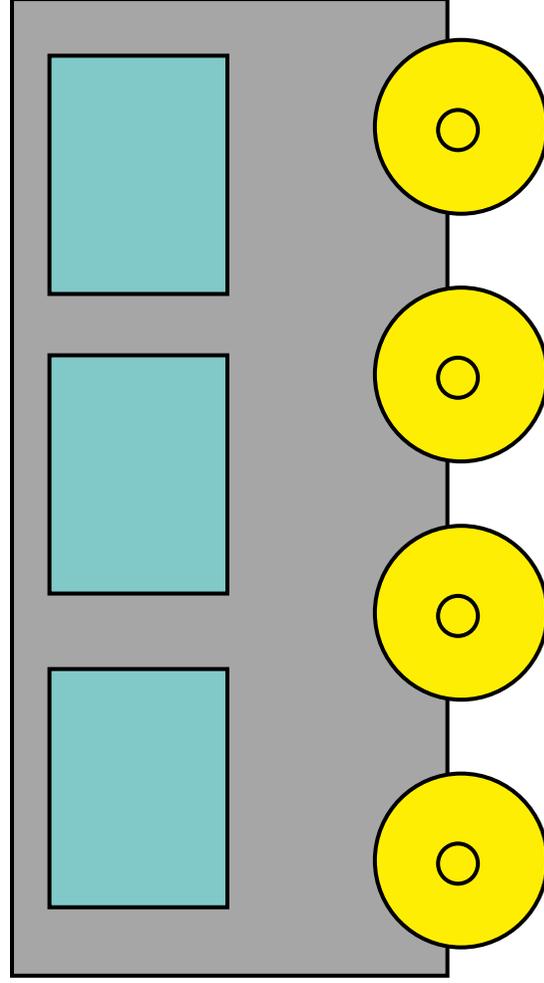
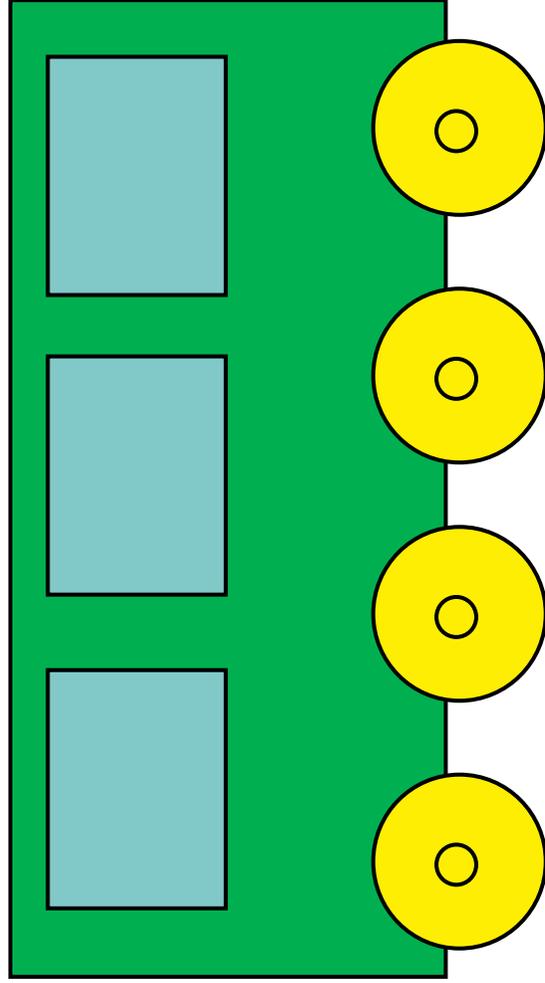
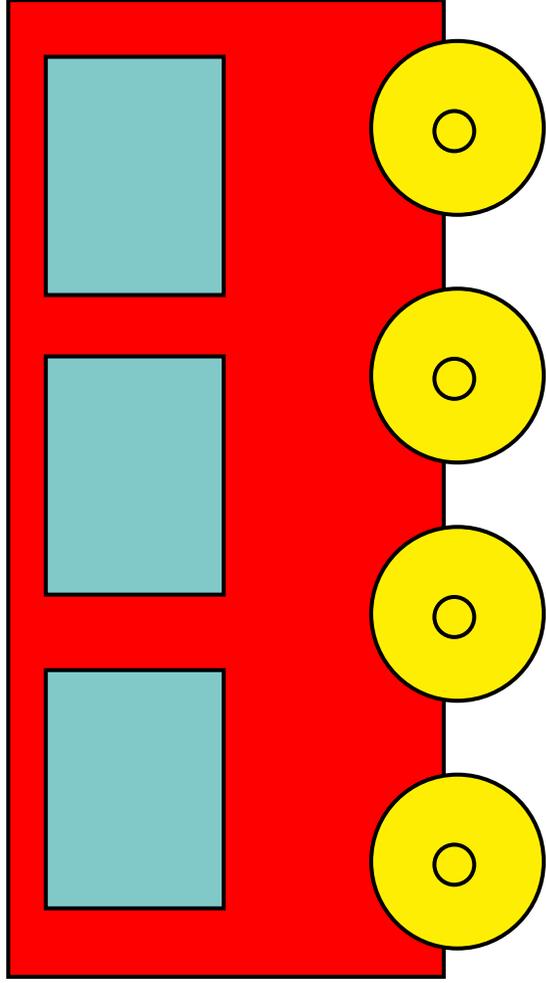
**Sharing the process**

Ask pupils to share their answers.  
**? Who found out how many were in the red car?**  
Select some pupils to discuss how they worked it out, and explore whether other pupils carried out the addition in a different order. Use this as a follow up from lesson 1 that we can add in any order but still get the same answer.

**Adapting and  
differentiating:**

- ◇ Provide the steps in a different order. Step one; The grey car has four passengers. The green car has one more passenger than the grey car. How many passengers are in the green car? Step two; The grey car has four passengers. The red car has three fewer passengers than the grey car. How many passengers are in the red car? Step three; The grey car has four passengers. The green car has five passengers. The red has one passenger. How many passengers are there altogether?
- ◇ Ask pupils to explore how many there would be if there were five people in the grey car, then six people in the grey car, then seven people in the grey car.





<p><b>Lesson 7:</b></p>	<p><b>Key Learning:</b></p> <p>To explore the concept of doubles</p>	<p><b>Key vocabulary:</b></p> <p>Double, two equal parts, part, whole</p>
<p><b>Suggested Do Now:</b></p>	<p><i>Estimating and counting</i></p> <p>Looking at the Big Picture, point to one of the bushes and ask pupils to estimate how many flowers they think are on it, then count to check. Ask a pupil to pick up one cube for every flower pointed to or crossed out as the class count them to check against the estimates.</p>	<p><b>Transition ideas:</b></p> <p>Counting forwards from any given number to 20</p>
<p><b>New Learning:</b></p>	<p><i>Doubling as two sets of the same value</i></p> <p><b>[Teacher note: Pupils are continuing to explore doubles from Unit 13. This lesson is a suggested way of continuing to explore doubles however please adapt it to suit where your pupils are.]</b></p> <p>Introduce today's problem. The conductor had four passengers yesterday but today he has double the amount. How many passengers does the conductor have?</p> <p><b>? How can we help the conductor find out how many passengers he has today?</b></p> <p>Pupils to discuss how they could help the conductor and then take feedback of their ideas. If it doesn't come through the discussion, ask the pupils what we mean by doubling (to add a value to itself). Lead on to the fact we need twice as many passengers and that we need to find four add four to find how many passengers he has.</p> <p>Represent the four passengers using one set of coloured cubes and place onto one of the parts on a part-whole model (Resource 1). Select a pupil to then use the cubes to create another tower of four and place onto the other part on the part-whole model. Place them next to each other to confirm they are the same height.</p> <p><b>? We have doubled the number of passengers. Now what do we need to do to find how many passengers there are altogether?</b></p> <p> <i>Double four is eight. There are eight passengers altogether.</i></p> <p>Move the parts together to the whole on the part-whole model to support this. Repeat with other examples of passengers e.g. on Tuesday he had five passengers, seven passengers etc. Role play the Talk Task.</p>	<p><b>Resources:</b></p> <p>Cubes</p> <p>Resource 1</p> <p>Resource 2</p> <p>Task sheet 7b</p>
<p><b>Talk Task</b></p>	<p><i>Doubling numbers to ten</i></p> <p>Pupils to pick a family of passengers from Resource 2. Each pupil makes a rod of cubes to represent the family. Pupil A to use one colour, Pupil B another colour and both place them onto a part of the part-whole model (Resource 1) and then they move it to the whole and count the total.</p> <p><b>Pupil A:</b> <i>I have three and this is one of two equal parts.</i></p> <p><b>Pupil B:</b> <i>I have three and this is one of two equal parts.</i></p> <p><b>Together:</b> <i>The whole is six. Double three is six.</i></p>	<p><b>Sentence Structure:</b></p> <p>___ is one of two equal parts.</p> <p>The whole is ___</p> <p>Double ___ is ___</p>

**Exploring ways to double**

**Suggested  
Develop Learning:**

Address any misconceptions observed from the Talk Task.

Explain that the conductor wants to make the station look prettier and he likes the flowers on the bushes. He wants to double the number of flowers on the bushes.

**[Teacher note: Do not refer to the bush with red and white flowers as there are 12 flowers.]**

Referring to a bush e.g. the bush with pink flowers, ask the pupils how can we find out how many pink flowers the conductor will have after he has doubled it?

Allow pupils time to discuss what they would need to do if they wanted to double the number of flowers, highlighting that double something is two of the same and take feedback. Explain that we can find double two by making two groups of two and counting them or by adding two plus two.

Select one pupil to make two groups of two pink cubes in a tower and find out how many there are altogether using a part-whole model.

 *Two and two is equal to four. Double two is four.*

You may wish to select a pupil to model gathering four cubes and then using a part whole model to double it without making them into towers and highlight that both give the same answer and that double two is equal to four.

If necessary, repeat with other examples.

Introduce and model the Independent Task.

**Suggested Focus** *Doubling the flowers*

**Group activity/  
Independent  
Learning:**

**[Teacher note: This task is designed to be a Talk Task.]**

In pairs, pupils to have Task 7b and between them they double the flowers, comparing the two methods. They choose a bush to double. Pupil A makes a tower of that numbers of cubes and then an identical tower of cubes to find double. Pupil B gathers that number of cubes, and then gathers the same number of cubes again adding them together, on a part-whole model. They then find out how many cubes there are in their pile and compare answers. They can use the same sentence structures as the Talk Task.

**Plenary:** *When might we use double?*

Pose the question to pupils and lead a discussion to consider when they might use doubling e.g. doubling sweets for you and a friend, two teams for a sport, total age of two pupils the same age.

**Adapting and  
differentiating:**

- ◇ Pupils could draw a picture of the bushes with double the flowers on.
- ◇ Provide pupils with an image of the two bushes and pupils must place the cubes onto the images, using two different colours and then combine them and discuss doubling.



<p><b>Lesson 8:</b></p>	<p><b>Key Learning:</b> To find half of numbers to 20 and relate this to doubling.</p>	<p><b>Key vocabulary:</b> Double, two equal parts, add, half, share between</p>
<p><b>Suggested Do Now:</b></p>	<p><i>One more or one less</i>  Prepare three or four towers of cubes, each made up of fewer than 20 cubes. Show a tower to the pupils and ask them to find either, one more or one less than the tower. Select pupils to physically remove or add a cube to support their answer.</p>	<p><b>Transition ideas:</b>  Chanting ordinal numbers</p>
<p><b>New Learning:</b></p>	<p><i>Exploring concept of a half as two equal groups</i>  <b>[Teacher note: Pupils are continuing to explore halves from Unit 13. This lesson is a suggested way of continuing to explore halves however please adapt it to suit where your pupils are.]</b> Introduce today's problem: <b>'The conductor now has too many people on the train so it can't pull the carriages. He needs to halve the number of people on them.'</b> <b>? There are eight people on a carriage. How can the conductor find half of eight?</b> Allow time for pupils to discuss how they could help the conductor find half and take feedback on their ideas. If it doesn't come through the discussion, ask the pupils what we mean by halving (when the whole has been shared into two equal parts). Use eight cubes to represent the eight people. Select a pupil to share the cubes into two groups on a part-whole model (Resource 1). Once they are split, make them into towers and stand them next to each other. <b>? Are there two equal parts?</b>  <i>The whole has been split into two equal parts.</i> <b>? How many are in each part?</b>  <i>There are four cubes in each part. Half of eight is equal to four.</i> Ensure pupils understand the meaning of equal (they are the same in value). If pupils are unsure, model making equal and unequal towers of cubes to explain the difference between equal and unequal. Repeat with another example of finding half, splitting the whole into two equal parts using a part-whole model. Role play the Talk Task.</p>	<p><b>Resources:</b>  Resource 1 Cubes Task 8a (1&amp;2)</p>
<p><b>Talk Task</b></p>	<p><i>Finding half</i>  Pupils to have Task 8a(1&amp;2) showing number of passengers in the carriage. Pupils to represent the carriage using concrete manipulatives and find half by splitting the concrete into two equal groups on a part whole model (Resource 1). <b>Pupil A:</b> (gathering the number of cubes) <i>The whole is 12.</i> <b>Pupil B:</b> (splitting the cubes into two groups) <i>12 split into two equal groups is six.</i> <b>Together:</b> (each takes one of the parts and makes a tower out of the cubes, standing them next to each other to check they are equal) <i>Half of 12 is equal to six.</i></p>	<p><b>Sentence Structure:</b>  ___ split into two equal groups is ___ Half of ___ is equal to ___ Double ___ is equal to ___</p>

**Exploring relationship between double and half**

**Suggested  
Develop Learning:**

Ask pupils to model their Talk Task and use this as an opportunity for pupils to 'teach' the lesson to further support and consolidate pupils' understanding of halving.

Using the same example as earlier, half of eight, show a tower of eight cubes, four of red and four of blue. Establish using a part-whole model and towers of cubes, what half of eight is.

Ask another pupil to take four red cubes and ask pupils to think about what double four would be. Remember that double means two groups of the same number. Then ask the pupil to double four using blue cubes so the rod is made up of eight cubes, four blue and four red.

**? What do you notice?**

Encourage pupils to see the relationship between the two rods of eight cubes.

Through this exploration, pupils should recognise that double and half have a relationship; for example, half of eight is equal to four and double four is equal to eight.

Repeat this process with another example of passengers from Task 8a(1).

Use questioning to clarify children's understanding and highlight the relationship between doubling and halving.

**? What is half of eight?**

**? If half of eight is four, what is double four?**

**Suggested Focus**

*Finding half of people on a carriage*

**Group activity/  
Independent  
Learning:**

Pupils to continue with the Talk Task; finding half of the other carriages but now they add in the sentence after stating what half is.

 *Double four is eight.*

**Plenary:**

*What is my question?*

Show pupils a stack of eight cubes.

**? If eight is half. What is my whole?**

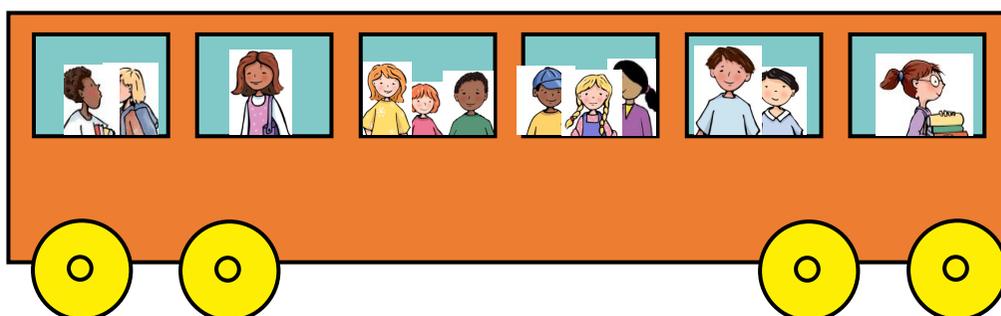
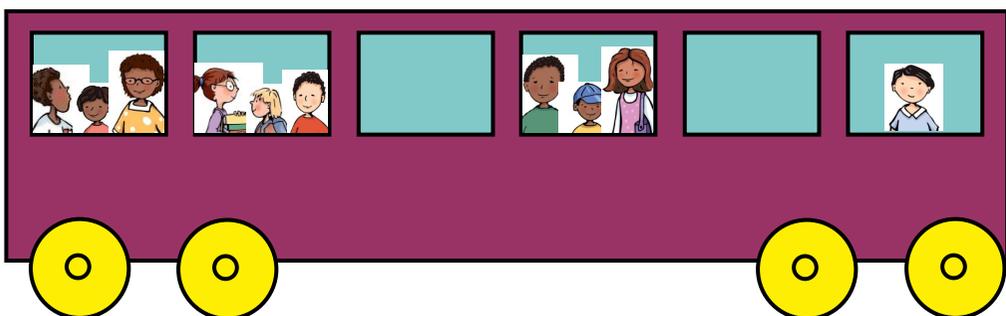
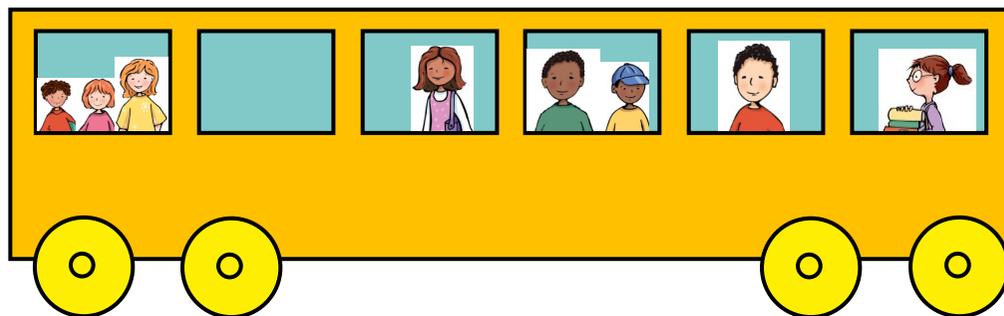
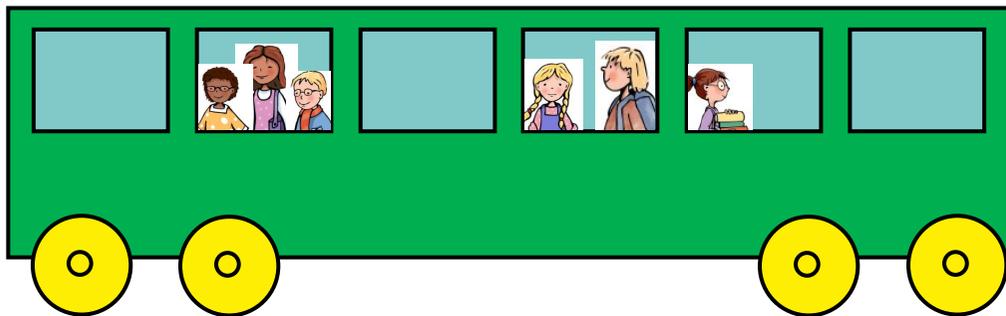
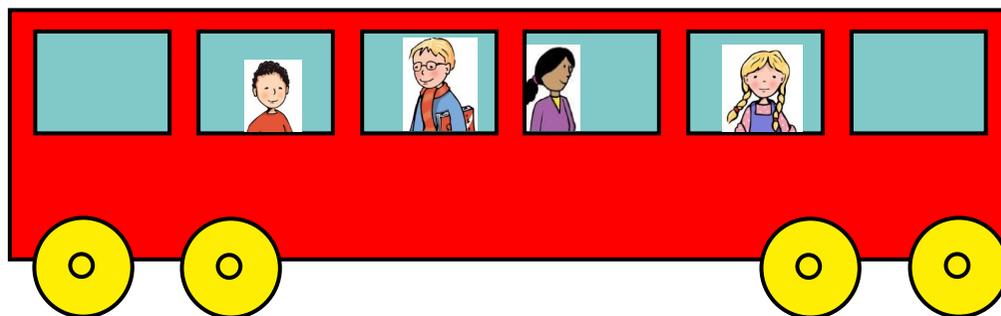
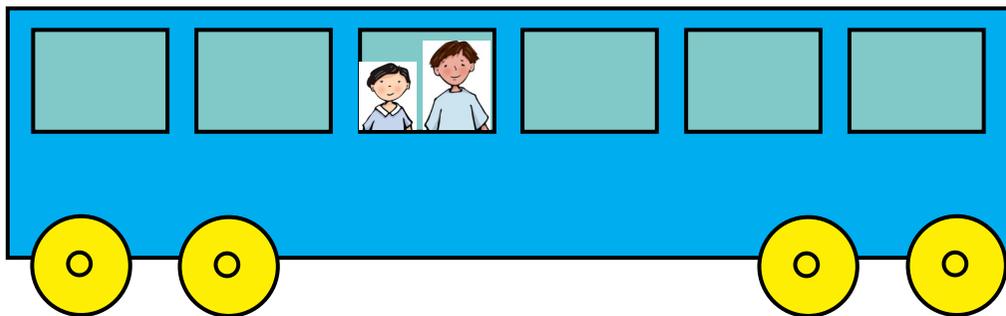
Encourage pupils to discuss how they could solve this and take feedback from them. Explore their strategies and establish the need to double the eight using a part-whole model. Repeat with other examples. You could also include:

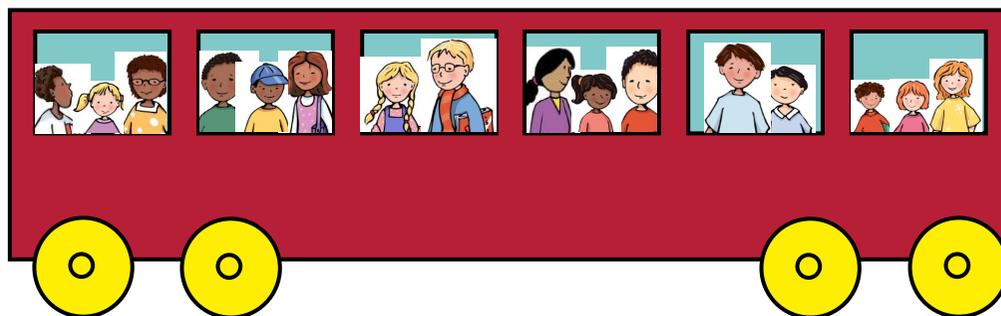
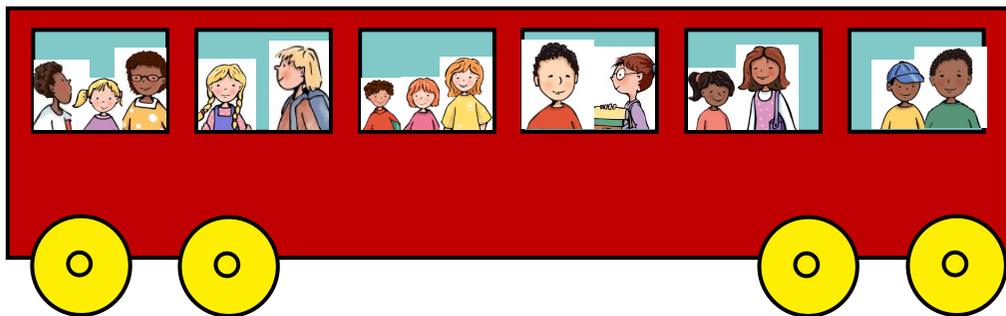
**? If double my number is 4. What is my number?**

**Adapting and  
differentiating:**

◇ Provide pupils with completed part-whole models and focus on the sentence structures explaining what the part-whole models show.

◇ Provide pupils with statements similar to that of the plenary and ask pupils to explore what the number is. They could create their own mystery number for a partner to solve.





<p><b>Lesson 9:</b></p>	<p><b>Key Learning:</b></p> <p>To consolidate learning</p>	<p><b>Key vocabulary:</b></p> <p>Everyone will say the most important key vocabulary and use words accurately in lessons. This must be planned by the teacher prior to the lesson.</p>
<p><b>Suggested Do Now:</b></p>	<p>The Do Now task should be planned by the teacher based on pupils' needs. The practice in this section must help pupils in the lesson or build fluency in a key skill.</p>	<p><b>Transition ideas:</b></p> <p>During transitions everyone is rehearsing or practising key mathematical knowledge so no time is wasted in lessons.</p> <p>The transition takes approximately 30 seconds.</p>
<p><b>New Learning:</b></p>	<p><b><i>Introduce the New Learning</i></b></p> <p>When planning the New Learning consider how you will ensure that:</p> <ul style="list-style-type: none"> <li>• Everyone says the most important key vocabulary.</li> <li>• Ideally, the teacher and children model using concrete manipulatives.</li> <li>• Everyone uses words and symbols accurately.</li> <li>• Everyone is ready to answer questions.</li> <li>• Everyone answers in full sentences.</li> <li>• Misconceptions are anticipated and incorporated.</li> <li>• The Talk Task is modelled.</li> </ul>	
<p><b>Talk Task:</b></p>	<p><b><i>Talking about the maths that pupils are doing</i></b></p> <p>When planning a Talk Task the emphasis is on language and not completing tasks. Consider how you will ensure that:</p> <ul style="list-style-type: none"> <li>• Everyone is speaking in full sentences.</li> <li>• Everyone uses words and symbols accurately.</li> <li>• Everyone is using appropriate representations that support conceptual understanding of the key vocabulary.</li> </ul> <p>Recording is not expected as part of a Talk Task.</p>	<p><b>Sentence Structure:</b></p> <p>Plan full sentences that you expect all pupils to be able to say.</p> <p>Include suggestions to demonstrate how pupils will be able to talk about the maths that they are doing.</p>

**Developing pupils' understanding**

**Suggested Develop Learning:**

When planning the Developed Learning, consider how you will ensure that:

- References are made to previously learnt models, representations, skills and concepts.
- Everyone is ready to answer questions.
- Everyone answers in full sentences.
- Everyone uses words and symbols accurately.

Misconceptions are anticipated and incorporated.

**Suggested Focus Group activity/ Independent Learning:**

**Applying learning**

When planning an Independent Task, consider how you will ensure that:

- Everyone is engaged in completing the task, 100% of the time.
- Everyone has access to appropriate representations.
- Everyone is engaged in learning about the same mathematical concept or skill, with an appropriate amount of scaffolding.
- There is an emphasis on understanding and developing fluency, rather than rushing to 'finish' the work.

**Plenary:**

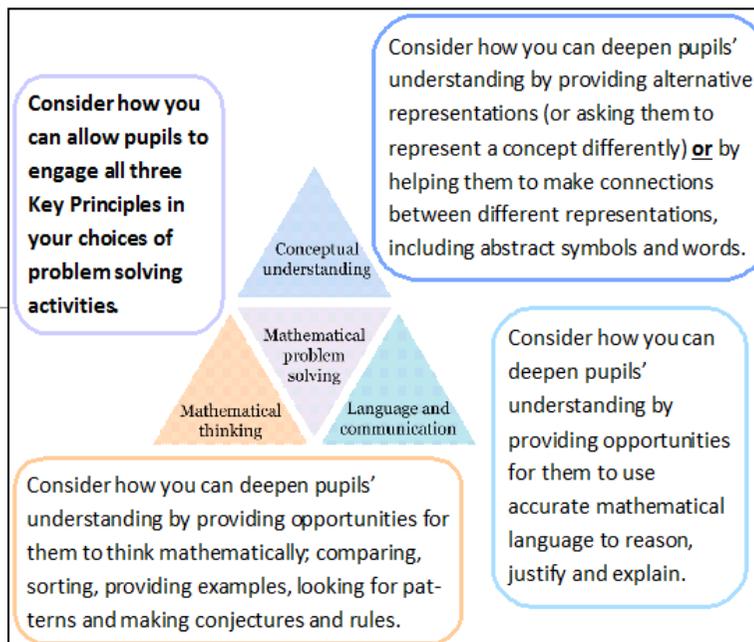
The plenary should celebrate pupils' success, address any misconceptions or prepare pupils for another lesson.

Teachers should plan the plenary based on the lesson to address any misconceptions. Reinforce that success comes from working hard and trying your best.

**Promoting depth of understanding within this lesson:**

Consider how differentiation can be planned for:

- Through consolidation and challenge
- By creating a different task that enables pupils to access the key learning
- Through scaffolding and constraints.



<p><b>Lesson 10:</b></p>	<p><b>Key Learning:</b></p> <p>To consolidate learning</p>	<p><b>Key vocabulary:</b></p> <p>Everyone will say the most important key vocabulary and use words accurately in lessons. This must be planned by the teacher prior to the lesson.</p>
<p><b>Suggested Do Now:</b></p>	<p>The Do Now task should be planned by the teacher based on pupils' needs. The practice in this section must help pupils in the lesson or build fluency in a key skill.</p>	<p><b>Transition ideas:</b></p> <p>During transitions everyone is rehearsing or practising key mathematical knowledge so no time is wasted in lessons.</p> <p>The transition takes approximately 30 seconds.</p>
<p><b>New Learning:</b></p>	<p><b><i>Introduce the New Learning</i></b></p> <p>When planning the New Learning consider how you will ensure that:</p> <ul style="list-style-type: none"> <li>• Everyone says the most important key vocabulary.</li> <li>• Ideally, the teacher and children model using concrete manipulatives.</li> <li>• Everyone uses words and symbols accurately.</li> <li>• Everyone is ready to answer questions.</li> <li>• Everyone answers in full sentences.</li> <li>• Misconceptions are anticipated and incorporated.</li> <li>• The Talk Task is modelled.</li> </ul>	
<p><b>Talk Task:</b></p>	<p><b><i>Talking about the maths that pupils are doing</i></b></p> <p>When planning a Talk Task the emphasis is on language and not completing tasks. Consider how you will ensure that:</p> <ul style="list-style-type: none"> <li>• Everyone is speaking in full sentences.</li> <li>• Everyone uses words and symbols accurately.</li> <li>• Everyone is using appropriate representations that support conceptual understanding of the key vocabulary.</li> </ul> <p>Recording is not expected as part of a Talk Task.</p>	<p><b>Sentence Structure:</b></p> <p>Plan full sentences that you expect all pupils to be able to say.</p> <p>Include suggestions to demonstrate how pupils will be able to talk about the maths that they are doing.</p>

**Developing pupils' understanding**

**Suggested Develop Learning:**

When planning the Developed Learning, consider how you will ensure that:

- References are made to previously learnt models, representations, skills and concepts.
- Everyone is ready to answer questions.
- Everyone answers in full sentences.
- Everyone uses words and symbols accurately.

Misconceptions are anticipated and incorporated.

**Suggested Focus Group activity/ Independent Learning:**

**Applying learning**

When planning an Independent Task, consider how you will ensure that:

- Everyone is engaged in completing the task, 100% of the time.
- Everyone has access to appropriate representations.
- Everyone is engaged in learning about the same mathematical concept or skill, with an appropriate amount of scaffolding.
- There is an emphasis on understanding and developing fluency, rather than rushing to 'finish' the work.

**Plenary:**

The plenary should celebrate pupils' success, address any misconceptions or prepare pupils for another lesson.

Teachers should plan the plenary based on the lesson to address any misconceptions. Reinforce that success comes from working hard and trying your best.

**Promoting depth of understanding within this lesson:**

Consider how differentiation can be planned for:

- Through consolidation and challenge
- By creating a different task that enables pupils to access the key learning
- Through scaffolding and constraints.

