**Bundling Experiences and Outcomes – Numeracy and Maths**

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| **Context:**  Development of the school playground |
| **Experiences and Outcomes:**  *I can use the common units of measure, convert between related units of the metric system and carry out calculations when solving problems.* ***MNU 2-11b***  *I can explain how different methods can be used to find the perimeter and area of a simple 2D shape or**volume of a simple 3D object.* ***MNU 2-11c***  I can draw 2D shapes and make representations of 3D objects using an appropriate range of methods and efficient use of resources. **MTH 2-16c**  Having investigated where, why and how scale is used and expressed, I can apply my understanding to interpret simple models, maps and plans. **MTH 2-17d**  *I have carried out investigations and surveys, devising and using a variety of methods to gather information and have worked with others to collate, organise and communicate the results in an appropriate way.* ***MNU 2-20b***  *I can manage money, compare costs from different retailers, and determine what I can afford to buy.* ***MNU 2-09a*** |
| **Learning Intentions (highlighted learning intentions are being assessed through holistic task):**  We are learning to:   * Find the perimeter and area of a large space. * Draw a scale plan of an outdoor area and explain this to a peer. * Represent 3D constructions as 2D shapes as part of a scale plan, justifying their chosen resources. * Devise a survey and use this to gather information to support decision making. * Compare costs from different retailers to calculate a final proposed cost for our design. * Use language appropriate to our audience when presenting our ideas. |
| **Planned Learning and Teaching:**   * Find a suitable space – measure perimeter, calculate area and note any key features relevant to the design (wall space, surface, shaded areas etc) * Prepare a scale drawing of the space and decide on the age group of children the playground will be designed for * Devise and carry out a survey to find out what kind of things children of that age might want in their playground (suggestions to put together by learners following research) * Choosing from the most popular choices, learners create scaled templates for the space and experiment with different layouts in the space; this will involve visualising 3D constructions from 2D images. They may need to reconsider the choices they have made to produce an attractive workable layout that meets safety needs. These include sight lines for supervisors, buffer zones between different types of play, considering the needs of children with disabilities and thinking about the directions in which children are likely to be running * Finally, learners cost their designs – a spreadsheet could be used here to help them to see if they are able to afford their choices * Learners can then present their designs to children in the age group they were planning for |
| **Hinge Questions:**  Show an example of an irregular shape – how might we calculate the perimeter and area of this shape?  Looking at an example plan of school/local community – given scale, can they calculate distance from A to B?  Analysing graphs – what does information tell us?  Look at playground equipment from two different retailers – which gives best value for money and why? |
| **Holistic Assessment Task:**  The following scale plan of the school has been created to help the builders who are installing our new carpets and flooring.  The scale of this plan is 1cm = 1.5m  Can you calculate the perimeter and area of our school?  The gym hall will have a sprung sports flooring fitted, elsewhere throughout the school will be carpeted.  The sprung sports flooring costs £20 per square metre.  Can you draw a scale plan of the gym hall only and use this to calculate the cost of flooring for the hall?  There are two options available for carpets:  Carpets R Us - £15 per square metre for the first 20m² and £10 thereafter  We Are Carpets - £12 per square metre  Our classroom measures \_\_\_\_\_\_\_, which option would be cheaper for us?  Do you think this would still be the case if we were to carpet the rest of the school? Explain your reasoning. |