



Boorowa Central School

Excellence through Respect, Responsibility and Participation

Assessment Task Notification

All tasks should be clearly outlined in the notice and give information pertaining to the nature of the task, the outcomes being assessed and the marking schedule giving individual component weightings.

Teacher: Poplin	Course: Stage 5 Mathematics
Task and Number: Design Task No. 2	Task Weighting: 20%
Date Issued: Monday 3 rd May 2021	Date Due: Mon 17 th May 2021
Syllabus component:	Area and Volume
Outcomes to be assessed. MA5.1-8MG Calculates the areas of composite shapes, and the surface areas of rectangular and triangular prisms MA5.2-11MG Calculates the surface areas of right prisms, cylinders and related composite solids 5.2-1 WM selects appropriate notations and conventions to communicate mathematical ideas and solutions 5.2-2 WM interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems 5.2-3 WM constructs arguments to prove and justify results	
Description of task: General Information: This task consists of 2 sections. Each section contains a number of parts. Each part must be completed. Use marking guidelines as a checklist. Section A: The manufacturer "Crunchies" has decided to begin manufacturing a new line of biscuits. The new biscuit is a shortbread made in the shape of an equilateral triangle with side length of 5cm and a depth of 1cm. As a member of the Crunchies' staff you have been tasked with designing a package for this biscuit . The instructions you have been given are that each packet is to contain 12 biscuits and you are free to use any shape for the packet. <ol style="list-style-type: none">1. Design a package that will hold 12 biscuits. Draw your design both as a 3D image and a net.(remember to include the actual real life measurements)2. Construct a scaled model of the package.3. Set out clearly all formulae needed to find the surface area of your package and do the calculations to find the surface area.4. Set out clearly all formulae needed to find the volume of your package and do the calculations to find the volume.5. Discuss how your package meets requirements by considering and commenting on each of the following factors:<ol style="list-style-type: none">a) Ease of stackingb) Packaging required is minimalc) Airspace is minimal (show by calculating) Section B: Peta Phillips, a local farmer wishes to construct a rainwater tank that will hold between 10 000 and 15 000 litres. The requirements are that it must easily fit under the shed's gutter which is 3m above ground level and that the opening at the top of the tank must not be more than 30cm below the gutter. <ol style="list-style-type: none">1. Design two tanks that will meet Peta's requirements. One tank must be cylindrical and the other one rectangular.2. Draw a 3D diagram of each tank with their dimensions clearly labelled.3. Clearly show all the formulae and calculations needed to find the volume of each tank and find the volume for each tank to the nearest litre.4. Discuss how each of the tanks meet the requirements listed above.	
Submission of Task requirements The designs, nets, calculations and discussions may be submitted as hard copy or electronically. The actual models must be submitted. All items are due to Mrs Poplin by 3:30 pm on 17 th May 2021. Email address is julie.poplin@det.nsw.edu.au	

Note: If a student is absent for an assessment task or fails to submit a task when it is due, then a medical certificate or other acceptable explanation must be presented on the first day the student returns to school or a zero mark is awarded.