Practical 1 Name: Advisory:

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| AUSTRALIAN CURRICULUM CONTENT DESCRIPTORS |
| **Science** |
| **ACSIS169** [Analyse](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=analyse) patterns and trends in [data](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=data), including describing relationships between variables and identifying inconsistencies. |  |
| **ACSIS171** [Evaluate](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=evaluate) conclusions, including identifying sources of uncertainty and possible alternative explanations, and describe specific ways to improve the quality of the [data](http://www.australiancurriculum.edu.au/glossary/popup?a=S&t=data). |

**Equipment:**

|  |  |
| --- | --- |
| * *Plastic container*
* *Ruler*
* *Measuring Cylinder*
 | * *Electronic Scales*
* *iPad or phone*
* *Hydrometer*
 |

**Procedure:**

1. Use your phone or ipad to capture photo of each step you perform.
2. Measure the diameter and height of the inside of the container and record.
* Diameter: ………………………………………………..
* Height: …………………………………………………….
1. Use this and the formula below to calculate the volume of the cylinder.
* Volume of the cylinder = *radius2 x pi x height* ($πr^{2}h)$…………………………………………….
1. Use the scales to weigh the empty container.
* Weight of empty container: ………………………………………..
1. Fill the container with water and re-weigh. Calculate the weight of the water.
* Weight of the water in grams: ……………………………………………
1. Pour water into a measuring cylinder to measure its volume.
* Measured volume: …………………………………………………..
1. Compare the weight of the water (in grams), the volume of the cylinder (in cm3) and the volume of water (in mls). Record and explain what you notice.
* What do you notice? …………………………………………………………………………………………………..................

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1. Calculate the density of water. Mass (Weight) ÷ Volume = Density
* $d=\frac{m}{v}$:.....................................
1. Compare this to the reading on the hydrometer.
* Reading on Hydrometer: ………………………………………………………………………

**Write up:** Include the following in your write-up.

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| Science Practical Report Rubric |
| 5 | 4 | 3 | 2 | 1 |
| AIm | AIm | AIm | AIm | AIm |
| An extremely clear and well-constructed statement of the purpose of undertaking the practical. | A clear and well-constructed statement of the purpose of undertaking the practical. | A statement of the purpose of undertaking the practical is present. | A statement of the purpose of undertaking the practical is present, however it is too simple. | An aim is included but does not reflect the practical undertaken.No score = No evidence. |
| Materials/Method | Method | Method | Method | Method |
| A detailed account of the procedures undertaken to complete the practical using own words. List of materials is complete. | A detailed account of the procedures undertaken to complete the practical using mostly own words.. List of materials is complete. | An account of the procedures undertaken to complete the practical with some elements missing. List of materials is complete. | Limited account of the procedures undertaken to complete the practical. List of materials is incomplete. | Basic attempt to detail procedures and materials.No score = No evidence. |
| Results/Calculations | Results/Calculations | Results/Calculations | Results/Calculations | Results/Calculations |
| Results are displayed clearly and accurately. All calculations show working and are accurate. Correct units are displayed. | Most results are displayed clearly and accurately. Calculations show working and are mostly accurate. Most units are displayed. | Some results are displayed clearly and accurately. Some calculations show working and are accurate. Units may or may not be complete. | Few results are displayed clearly and accurately. Few calculations show working and are accurate. Units may or may not be complete. | Calculations, results and units are poorly recorded with little accuracy. |
| Conclusion/ | Conclusion/Results | Conclusion/Results | Conclusion/Results | Conclusion/Results |
| Findings from the practical are displayed clearly and appropriately. Discussion addresses the aim, answers the questions and demonstrates a high level of understanding of the concepts.  | Findings from the practical are displayed appropriately. Discussion addresses the aim, answers the questions and demonstrates a good level of understanding of the concepts.  | Findings from the practical are displayed. Discussion addresses the aim, answers the questions and demonstrates a sound level of understanding of the concepts.  | Findings from the practical are limited. Discussion is present. But demonstrates little understanding. | Findings poorly presented. Basic attempt at discussion is made.No score = No evidence. |

**Aim:** The purpose of this practical. Begin with ......... “***The aim of this practical is to........”***

**Materials:** List all materials that you used.

**Method:** Carefully describe ***in your own words*** what you did.

**Results and Calculations:** Neatly type up all the results and calculations completed in this practical.

**Conclusions/Observations**: Answer the following questions in sentences. ***Should be at least 100 words.***

**Questions:**

1. Discuss whether the aim of this practical was achieved.
2. Were there any possible errors or assumptions (things you think are true but have no evidence) that you made while conducting this practical. Were any of the errors unavoidable? How could you improve this practical?
3. Discuss your overall findings in this practical.
4. Explain how a steel boat can float on water, yet a steel bar sinks.
5. Discuss or draw a picture showing your understanding of the difference in density between steel and water.

Practical Write-up Due: Next Science Lesson (Tues/Fri, hand to science teacher)