GRADED ARITHMETIC.

1. A rock whose specific gravity is 2.5 and which weighs 100 lb. in air, will weigh how much in water?

2. How much will the same rock weigh in sea-water, specific gravity 1.027?

3. The specific gravity of ice is .93. If a floating block is 1 ft. thick, what will be the thickness of the portion above water?

4. The specific gravity of seasoned spruce is .512. A cubic foot of water weighs 62.5 lb. A raft is made, two planks thick, of twenty 2-inch planks, each 12 ft. long and 1 ft. wide. How many boys whose average weight is 100 lb. will the raft support? How many would it support if it were one plank thick, the same planks being used as before?

5. The specific gravity of boxwood is 1.28, that of maple is 675. A block which will just float in water was made of these two kinds of wood. What part of its thickness is of each kind?

6. A piece of cast iron weighs in air 3 lb. 3 oz.; in water it weighs 23 lb. What is its specific gravity?

7. A body weighs 5 lb. in air; it weighs 3 lb. in water; in a solution of a salt it weighs 2³/₄ lb. What is the sp. gr. of solution?

8. A piece of glass 5^{cm} square weighs in air 13.3^s; in water, 8.1^s. What is its specific gravity? How thick is it?

9. An empty bottle weighs 83.6^s; full of water it weighs 163.8^s; the same bottle full of a solution of copper sulphate weighs 174.4^s. What is the specific gravity of the solution? When the same bottle is filled with a solution of sodium nitrate it weighs 166.9^s. What is the specific gravity of this solution?

10. A piece of copper weighs 30.5675^s; some of the copper is dissolved by putting on it a few drops of nitric acid; the dissolved copper is washed off in a liter of water; the piece of copper now weighs 30.5274 How much copper is there in each cubic millimeter of the water?

11. When the mercury in the barometer stands at 30 in., water can be raised about 33 ft. in a common pump. How high could water be raised by such a pump at Medicine Hat when the barometric reading was 608^{mm}?

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