

- 5.—How is a barometer made? Mention the uses of a barometer.
- 6.—What is specific heat? Describe an experiment to show the great specific heat of water.
- 7.—Give a definition of work. How can we estimate the amount of work done in any case?
A man weighing 150 lbs. is at the base of a mountain whose height is half a mile; how much work must be performed in order that he may reach the summit?
- 8.—What is *latent heat*? What do we mean when we say the latent heat of water is equal to 79? What is the latent heat of steam equal to?
[Is that which is called latent heat really heat?]
- 9.—Show the course of a ray of light
(a) through a flat, thick piece of glass;
(b) through a piece of glass shaped like a wedge.
- 10.—Describe an experiment to show how the energy of a blow is changed into that other kind of energy which we call heat.
- 11.—State fully how you would show that a voltaic battery has the power of decomposing water.

MIDSUMMER EXAMINATIONS, 1887.

SECOND CLASS TEACHERS.

- 1.—Find the resultant (a) of two forces $1\frac{1}{2}$ and $2\frac{1}{2}$ acting at an angle of 60° , (b) of two forces P and Q acting at an angle of 30° .
- 2.—State Newton's Second Law of Motion, and show how it applies in the case of
(a) a ball thrown vertically upwards from the hand of a person at rest;
(b) a ball thrown vertically upwards from the hand of a person in motion;
(c) a body projected horizontally from the top of a cliff.
- 3.—Define work. How much work is done when a weight of 40 lbs. is drawn up a smooth plane 100 ft. in length and inclined at an angle of 30° to the horizon?
- 4.—How is the energy of a moving body estimated? What is the relation among force, momentum, and energy?
- 5.—What law governs the transmission of fluid pressure?
Describe an experiment to show the truth of this law.
[What is a law of nature? In what sense may a law of nature be said to govern?]