

9-1930

Question Box

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Recommended Citation

(1930) "Question Box," *Science Bulletin*: Vol. 3: No. 1, Article 7.

Available at: https://scholarworks.uni.edu/science_bulletin/vol3/iss1/7

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SCIENCE BULLETIN

QUESTION BOX

Editor-in-Chief: W. H. Kadesch. Advisory Board: Dr. L. Begeman, Head, Department of Physical Science; Dr. E. J. Cable, Head Department of Natural Science.

Issued Monthly. Entered as second class mail matter at the post-office, Cedar Falls, Iowa, under the act of August 24, 1912.

PLANNING THE YEAR'S WORK

One of the important things for the science teacher to do at this season is to lay definite plans for the work of the semester or year. One way to do this is to entrust everything to the text book. If the number of pages to be covered is divided by the number of available class periods the quotient is the number of pages to be covered in each recitation. In certain respects the plan works admirably. It provides for the consideration of all phases of the subject with something like the proper share of time to each. It guards against the introduction of irrelevant material, and especially against the sacrifice of time on teacher's hobbies. It requires only a minimum of effort on the part of the teacher, whose schedule may already be crowded with other and perhaps unrelated subjects. If interest on the part of the student soon flags and dies—well, that is only a natural consequence.

Another method of planning is to set up specific aims, in terms of projects to be undertaken, subject matter to be studied, experiences to be gained, etc. In this case the text book no longer is the master. It has become the servant—perhaps only one of many servants, any of which may be called upon at will to assist in the accomplishment of the purposes for which the course is given.

Plan your work carefully, then carefully work your plan.

Questions submitted before the end of the month will be answered in the next number of the Bulletin.

Question:

What coniferous trees and shrubs are native to Iowa?

Answer:

White Pine (*Pinus Strobus*), Balsam Fir (*Abies Balsamea*), Red Cedar (*Juniperus Virginiana*), common Juniper (*Juniperus Communis*), Creeping Juniper (*Juniperus horizontalis*), American Yew (*Taxus Canadensis*). With the exception of the red cedar, which is widely distributed over the state, these trees and shrubs are found mostly in north-eastern Iowa.

Question:

Does the Moon have any influence upon the Earth?

Answer:

There is a popular belief that the moon, our nearest neighbor, exerts a profound influence upon the weather; that the proper time of planting of crops and vegetables, their growth and development; the curing and preserving of meat; humidity and temperature of the atmosphere, all depend upon a particular phase of the moon. Extensive research carried on within recent years has offered no support for these wide-spread superstitious notions. The moon does, however, produce one profound effect on the earth in the formation of tides, and, no doubt, in a slight degree, affects the magnetic field of the earth. To what extent these magnetic disturbances influence weather no one at the present time can say. It is probable that the effect is negligible.

Question:

What poisonous snakes are found in the United States?

Answer:

The southern water-moccasin, the cop-

perphead, the Coral-snake, and all the different species of rattlesnakes.

Question:

What advantages does a one-cycle plan of geography study offer over the customary two-cycle plan?

Answer:

The one-cycle plan aims to present a unified picture of the entire world without the repetition of each continent. The main advantages which it has to offer are as follows:

Since teachers and texts are not driven by the necessity of covering each continent twice between the grades four and eight there is time for a more complete and interesting discussion of each unit. In other words there is less bareness of treatment of the different countries and more opportunity to present the individuality of each.

The one-cycle plan gives a better opportunity to introduce a continent at a level where it can be most profitably studied. All continents do not present the same difficulties nor the same values to children.

It does away with the cry often heard in the sixth and seventh grades, "We have had this before."

The saving of time gives an opportunity to unify the entire course by making the last unit an extended study of the United States in its world relations. This reviews the United States work of the fifth grade, presents problems which were too difficult to tackle then, and ties the country up with the entire world, a thing very desirable from the standpoint of the present stress on international problems.

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Outline for Elementary Physics

(Continued from page 3.)

2. Capillary tubes; castile soap; wires of different forms.
3. Effusion apparatus; glass jar.
4. Apparatus for osmosis experiment; carrot, rubber stopper, long glass tube.

Mechanics of Solids

1. Simple machines; lever and weights; pulleys and string with rectangular support; inclined plane; small jack screw; wheel and axle.
2. Accelerated motion apparatus; Atwood's machine, or grooved inclined plane with marbles and stop watch.
3. Force boards with 250 gram balances.
4. Center of gravity apparatus; irregular board; tumble jack, weighted cylinder; wooden cone for states of equilibrium.
5. Apparatus to illustrate inertia.
6. Newton's law of motion apparatus.
7. Rotating device and glass sphere to illustrate centrifugal force, flexible brass ring.
8. Pendulum ball, one inch in diameter, supports and clamps.

GROUP PROJECTS IN HEAT

Sources of Heat

1. Natural: Sun, Stars, Interior of the Earth.
2. Artificial: mechanical, chemical, electrical.

Temperature

1. Centigrade and Fahrenheit.
2. Maximum and Minimum Thermometers.
3. Clinical Thermometer.
4. Pyrometers.
5. Problems.

Distribution of Heat

1. Conduction.
2. Convection.
3. Radiation.
4. Natural Illustration.
5. Practical Application in Various Heating Devices.

Effects of Heat

1. Expansion: Expansion coefficient, Absolute Zero, Anomalous Expansion of Water.
2. Changes of State: Fusion, Boiling and Evaporation.
3. Practical Applications of such effects.

Heat as Energy

1. Calorie, British Thermal Unit.
2. Thermal Capacity, Specific Heat.
3. Heat Engines: Steam and Gasoline.
4. Doctrine of conservation of Energy in Heat Problems.
5. Problems of Heat.