DOCUMENT RESUME

ED 141 093 SE 022 567

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TITLE Survey of Classroom Activities for Science: A Questionnaire for Evaluation and Description of Science Teaching in the Elementary School.
PUB DATE [77]
NOTE 9p.; For related document, see SE 022 566; Contains occasional light and broken type

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Elementary Education; *Elementary School Science; *Evaluation; *Instruction; *Measurement Instruments; *Questionnaires; School Surveys; *Science Activities; Science Education

ABSTRACT

This document provides a survey questionnaire for evaluation and description of classroom activities for science and science teaching in the elementary school. The instrument includes 72 items relating to teaching and learning. No data regarding the instrument are provided. (SL)

SURVEY OF CLASSROOM ACTIVITIES FOR SCIENCE:

A Questionnaire for Evaluation and Description of Science Teaching in the Elementary School

by

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PART A: INFORMATION QUESTIONNAIRE

Mark the appropriate space on the computer answer sheet.

Please use a number 2 pencil and fill in spaces completely.

1. During my teacher-training program I completed an elementary science methods course as

   a) An unblocked Section.
   b. A part of a blocked Section with Math Methods.
   c) A part of the Professional Semester, five methods courses together.
   d) A course offering in University College.
   e) None of the above.

2. In my estimation, this course was _____ in preparing me to teach elementary school science.

   a) excellent
   b) adequate in all areas
   c) adequate in content but not in methods
   d) adequate in methods, but not in content
   e) of little value

3. In addition to the science methods course, I have taken

   a) one science subject matter course
   b) several science subject matter courses
   c) workshops in science
   d) a graduate level course in elementary science

4. The elementary science methods course was taken during

   a) 1960-1965
   b) 1966-1970
   c) 1971-1975
   d) 1976-1977
   e) other: _____

5. I am teaching

   a) kindergarten or first grade
   b) second or third grade
   c) fourth grade
   d) fifth grade
   e) sixth grade

6. Are you using a specific science program in your classroom? Also, please indicate the name of program (if your own units, write own).

_____

7. What was the average weekly time spent on science in your classroom so far this semester?

a) 0-30 minutes
b) 30-90 minutes
c) about 2 hours
d) about 3 hours
e) 4 or more hours

8. How much time do you average weekly teaching science during a science unit?

a) 0-30 minutes
b) 30-90 minutes
c) about 2 hours
d) about 4 hours

9. How would you classify your school district?

a) rural
b) suburban
c) urban
d) a mixture of urban and suburban
e) a little bit of everything

10. How would you judge your current class?

a) superior
b) above average
c) average
d) below average

11. What category most closely fits your teaching situation?

a) self-contained classroom
b) team-teaching situation
c) open space
d) combination of a and b
e) other _____
(Please describe).

ACTIVITIES

On the computer sheet labeled Part A, B, C, determine whether the following occur frequently or rarely. If frequently, mark space A; sometimes, mark space C; rarely or never, mark space E. You may mark any choice A through E.

(Frequently) (Rarely or Never)

( ) A ( ) B ( ) C ( ) D ( ) E

Mark only one space; A, B, C, D, or E.

PART B: TEACHER ACTIVITIES

Complete the following indicating whether you perform the following frequently, A; sometimes, C; rarely or never; E during units or lessons in science or related areas which you taught. You may mark any choice A through E.

12. Use the same readability formula and/or method for selecting science books for your class as used for other reading material.

13. Conduct demonstrations in front of the class so that your students will learn the scientific approach to investigating the world around them.

14. Redirect student questions so that you will be in the background.

15. Use a team-teaching approach to science by either combining classes or exchanging classes so that each teacher instructs in that area of science in which he or she feels most competent.

16. Combine your teaching of arithmetic and mathematical relationships with your instruction on scientific concepts and their relationships.

17. Present scientific information to the students primarily by the lecture-discussion method.

18. Evaluate student science grades basically through checklist of activities or skills accomplished.

19. Determine what you want the students to be able to do in science before you begin units.

20. Evaluate student's science grades basically through achievement or content tests.

21. Use field trips and/or science resource people as an integral part of your science instruction program.

22. As a means of science instruction, let the students identify and state the problem to be investigated. Then let the students initiate and implement their own means and methods for investigating the problem. Finally, allow the students to analyze their own data and arrive at their own conclusions.

23. Use reading assignments in the text as the primary method of science instruction.

24. Use teacher assessment strategies to evaluate and guide your own teaching.

25. Use refocusing questioning techniques so that discussion can be channeled in broader directions.

26. Starting with various simple notions, teach basic physics, biology, chemistry or general science. Example: Not "how to feed a rabbit" but the process of metabolism.

27. Present a scientific information to your students and then conduct an experiment to prove the validity of the information.

28. Allow students to be active in science lessons stressing development of skills such as observing, measurement and predicting rather than content.

29. Provide opportunity for the child to evaluate his own data in terms of that of the group or class.

30. Teach your students science and social studies together as a unified program of instruction showing the interdependency of the development of society and scientific progress.

31. Teach your pupils science from a qualitative, descriptive point of view. Postpone the quantitative aspects of science and measurement until as high school students they reach a higher level of sophistication in mathematics.

32. Allow your students to approach science problems and projects individually and to progress at their own rate of investigation and attainment.

33. Lead students to draw conclusions and make generalizations based on experiences of other individuals and teams.

34. Use whole class and large group instruction, rather than small group and individual instruction techniques.

35. Talk to your class less than 30% of the time during the lesson.

36. By increased permissiveness in student investigations, teach and test your students on increased "creativity" rather than achievement in factual information or in scientific principles.

37. Ask questions that usually have single answers so that students are more easily led to understanding of concepts.

38. Sequence instruction for your students by primarily considering connections in content

39. use children's responses in structuring further investigations.

40. Ask your students to memorize definitions of scientific words to better understand scientific concepts.

41. Give your students detailed and specific instructions for each step that must be taken in conducting an experiment, in analyzing the results, and in drawing the correct answers and conclusions.

42. Include the introduction of scientific information by reading articles, making written or oral reports on specific science topics as part of your reading and language arts assignments.

43. Keep student seating, movement and use of materials under fairly rigid control to avoid confusion during science lessons.

44. Set up situations in which your students are encouraged to formulate new questions; restate problems in their own words, and create new ideas.

PART C: STUDENT ACTIVITIES

Complete the following indicating that during the units or lessons in science or related areas which you taught, children in your class are given opportunities to:

(Mark A through E)

Frequently (A); (B); Sometimes (C); (D); Rarely (E).

MEASUREMENT

45. Use arbitrary standards to measure distance, volume, weight, area.

46. Compute and compare weight, area, volume, or pressure of substances.

47. Measure to collect information.

48. Record measurements.

49. Construct a balance to measure differences in weight.

50. Make graphs, histograms, diagrams, or charts to record and compare information.

51. Test hypotheses with measurement.

52. Design a technique for taking measurement.

53. Compare measurements that show variables in growth and development.

54. Use metric system to measure and compare distance, volume, weight, pressure, and temperature of substances.

55. Measure and compare time intervals between and during events.

OBSERVATION AND IDENTIFICATION OF FACTS AND IDEAS

56. Collect data from simple experiments.

57. Expand collection of data to other sources.

58. Identify objects, processes, organisms observed in the environment.

59. Describe characteristics of objects and events observed.

60. State questions inferred from variables and differences observed.

STATEMENT AND VERIFICATION OF HYPOTHESES

61. Make predictions from assembled data.

62. Select evidence that verifies a prediction or hypothesis.

63. Construct several hypotheses for verification.

64. Design and conduct investigations.

65. Evaluate the purpose of a control.

APPLICATION OF CONCEPTS AND PROCESSES

66. Classify substances and objects on basis of differences and simularities.

67. Combine smaller facts into more comprehensive facts, ideas, and concepts.

68. Evaluate information (resources and data) for accuracy.

69. Produce concrete objects, charts, pictures, diagrams, stories, poems that apply concepts and processes.

70. Produce tangible and original products that give evidence of creative thinking.

71. Produce new ideas and problems that evolve from investigations.

72. Apply past experiences to a new situation.