

Chapter 1 - Science Teaching and You

Completion

1. Locating your own scientific _____ refers to finding your inner scientist.

ANSWER: self

2. Learning science is exciting because it is both a set of practices or ideas and a _____.

ANSWER: way of thinking

3. Core concepts are an example of important _____ ideas.

ANSWER: science

4. A comprehensive explanation of some aspect of nature that is supported by a considerable body of evidence is called a scientific _____.

ANSWER: theory

5. A _____ is teachable and learnable over multiple years and grades.

ANSWER: disciplinary core idea

6. Current thinking about how children learn is based on the learning theory called _____.

ANSWER: constructivism

7. When an individual is able to reflect on his or her own thinking, this person is said to have the capacity for _____.

ANSWER: metacognition

8. "Hands-on learning" in science has given way to hands-on and _____ learning.

ANSWER: minds-on

9. A five- or three-step procedure that engages students in learning science is called the _____.

ANSWER: learning cycle

10. When teachers and students explore what they are able to do as a result of their classroom science experience, they are said to be in the _____ phase of the learning cycle.

ANSWER: evaluation

11. Incorrect answers are often referred to as _____.

ANSWER: alternative conceptions

12. Engaging students in inquiry experiences in the classroom may be referred to as science as _____.

ANSWER: practice

13. The attempt to design learning environments to be as accessible as possible by all people is called _____.

ANSWER: Universal Design for Learning

14. _____ teachers think deeply about their own teaching practices, the needs and identities of the students, and what their teaching is intended to accomplish.

ANSWER: Reflective

15. A _____ contains your observations of and questions about nature.

ANSWER: science journal

Multiple Choice

16. When you tailor your science instruction to meet the needs of students with diverse abilities, this is known as:

- a. alternative instruction.
- b. differentiated instruction.
- c. direct instruction.
- d. formative instruction.

ANSWER: b

17. When learning environments are created to be as accessible as possible by all people, regardless of age, ability, or situation, this is an example of:

- a. universal design.
- b. virtual design.
- c. backwards design.
- d. directed design.

ANSWER: a

18. Technology has made it possible to observe models of natural events or experiences that are not within the reach of the classroom. These are called:

- a. simulations.
- b. universal design.
- c. labs.

d. inquiry.

ANSWER: a

19. What term do scientists use to explain why connecting with nature feels good?

a. orthography

b. biophilia

c. semiotics

d. biome

ANSWER: b

20. When some students in our population have ready access to technology and others do not, this is known as:

a. the technology divide.

b. the digital divide.

c. connectivity issues.

d. a computer simulation.

ANSWER: b

21. The three dimensions of NGSS are science and engineering practices, disciplinary core ideas, and:

a. inquiry models.

b. crosscutting concepts.

c. scientific knowledge.

d. skills.

ANSWER: b

22. The learning cycle includes all of the following phases EXCEPT:

a. engagement.

b. exploration.

c. evaluation.

d. extrapolation.

ANSWER: d

23. The science and engineering practices are a set of practices based on the premise that we can use our senses to give us accurate information about the world. One example of using our senses is:

a. making inaccurate observations.

b. creating explanations without observations.

c. exploring results and trying to make sense of them.

d. only conducting the experiment alone.

ANSWER: c

24. Green science is a branch of _____ studies that includes the study of alternative and renewable energy, food webs, conservation, resource distribution, and the changes in

world climate.
a. physical
b. chemical
c. environmental
d. mathematical

ANSWER: c

25. Constructivism uses both _____ knowledge and new personal experience.

- a. prior
- b. wrong
- c. alternative
- d. new

ANSWER: a

26. Science can be described as which of the following?

- a. a set of practices
- b. a set of ideas
- c. a way of thinking
- d. all of the above

ANSWER: d

27. The problem with viewing science as having only one method is:

- a. there are many scientific methods, and there is no single sequence that all scientists follow.
- b. it gives the false impression that there is just one way to do science.
- c. it portrays a stereotype that science is not creative.
- d. all of the above.

ANSWER: d

28. Bruner's work differed from Piaget's in that he thought teaching should:

- a. only align to developmental levels.
- b. allow children to discover for themselves.
- c. concepts should only be taught once.
- d. wait until the stage of maturation.

ANSWER: b

29. Hands-on activities have been common in science for decades but they often leave out which critical element?

- a. connections to the student's lives
- b. formal assessment
- c. learning goals for the entire class
- d. engaging activities

ANSWER: a

30. If some differences with collaboration and technology exist, the author suggests:

- a. avoiding technology in the classroom.
- b. monitoring student's use of technology.
- c. creating competition in your classroom.
- d. only encouraging technology use at home.

ANSWER: b

Essay

31. What does the author mean when she says there is no one single set of steps that scientists use?

ANSWER: Answers will vary.

32. If you were to describe how scientists work, what are some of the skills they employ?

ANSWER: Answers will vary.

33. How does the canceled check activity provide a model for how science works?

ANSWER: Answers will vary.

34. Describe the critique of Piaget's stages of child development.

ANSWER: Answers will vary.

35. Is the response to the Montillation of Traxoline paragraph considered authentic learning? Why or why not?

ANSWER: Answers will vary.