REVISION SCIENTIFIC INQUIRY

1. What is a factor that can change in an experiment?

   a) Claim
   b) Variable
   c) Scientific Inquiry
   d) Hypothesis

2. What variable in an experiment is measured? - it is also called the responding variable.

   a) Dependent variable
   b) Operational Definition
   c) Independent Variable
   d) Control Variable

3. What can be defined as: a possible explanation for a set of observations, or an educated guess that must be "testable".

   a) Scientific Theory
   b) Communicating
   c) Hypothesis
   d) Claim

4. Why do scientists conduct experiments?

   a) To make a lot of money.
   b) To ask a question.
   c) To make a hypothesis.
   d) To prove a prediction is correct.

5. "Ice will melt faster in salt water.", would make a good

   a) Hypothesis
   b) Question
   c) Analysis
   d) Conclusion

6. If plants are exposed to sunlight, then they will grow taller. What part of the scientific method is this an example of?

   a) Procedure
   b) Hypothesis
   c) Question
   d) Results

7. When you explain why the sugar is dissolving faster than the salt. This is an example of a

   a) Classification
   b) experiment
   c) hypothesis
   d) conclusion

8. This step of scientific method is called an educated guess or prediction.

   a) Hypothesis
   b) Research
   c) Observation
   d) Conclusion

9. The independent variable is what you _____ during an experiment.
   a) change
   b) do not change
   c) measure
   d) count

10. The dependent variable in an experiment is what you
    a) Change
    b) Measure

11. After you write your conclusion, it is important to share your results with others.
    a) True
    b) False

12. During this step of the scientific method, a scientist would gather background information.
    a) Hypothesis
    b) Research
    c) Observation
    d) Experiment

13. When making an observation, you must use
    a) Only Sight
    b) Smell & Touch
    c) ALL 5 Senses
    d) Only Taste

Basic steps in SI

1. Make observation

- identify problems/ review work of others

- observe from prev experiment

- using senses and take notes

2. Ask question

- research from question

- evaluate info that is known

3. Make hypothesis

- making prediction between variables based on theory

- through process of deductive reasoning

4. Conduct experiment

- collect and analyze data

- to know whether hypothesis is accepted or rejected

- if hypothesis rejected, repeat process again

5. Draw conclusion

- conclusion drawn/ statement made whether the hypothesis is accepted or rejected

- often lead to new questions, hypothesis and experiment

6. Report results

- communicate findings with other researchers

- through journal or articles

TYPES OF QUESTIONS

a. Factual

- straight forward answers

- based on facts

- who, what, where, when, why

- eg: What is the state capital, Who is the current PM, what is the number of babies in July

b. Convergent

- only one correct answer

- guide observations

- have range of accuracy

- eg: What is SDG? What is the elements of SDG

c. Divergent

- critical thinking and open ended

- discover, analyze, identify

- no right or wrong answer but encourage possibilities

- eg: discuss the importance…., what will happen if…

d. Evaluation

- combine multiple logical and thinking process

- analyze and taken from diff perspectives

- eg: what are the diff and similarities between…

Scientific Inquiry

a. Requires

- identification assumptions

- use of critical and logic thinking

- consideration of alternatives explanation

14. “What is the formula for slope?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

15. “What are some of the factors that cause rust?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

16. “How would you use your knowledge of latitude and longitude to locate Greenland?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

17. “Construct a tower one foot tall using only four blocks.”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

18. “Do you think that the engineers did the right thing?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

19. “How many ounces in a pound?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

20. How would your life be different if you could breathe under water?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

21. “If you had eight inches of water in your basement and a hose, how would you use the hose to get the water out?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

22. “What happens when you multiply each of these numbers by nine?”
    a) Factual
    b) Convergent
    c) Divergent
    d) Evaluative

23. Every hypothesis begins with what word?
    a) Does
    b) If
    c) Which
    d) Then

24. Does the type of shoes affect the running speed? Which is the correct testable question?
    a) If the subject wears boots, then the subject will jump the fastest.
    b) If the subject wears heels, then the subject will run the slowest.
    c) The subject wears Nike, then the subject will run the fastest.
    d) If I wear Nike, then I will run the slowest.

25. Does the brand of bubble gum affect the bubble size? Which hypothesis is INCORRECT?
    a) If the subject chews Bubblelicious, then the subject will blow the biggest bubble.
    b) If the subject chews Big Red, then the subject will blow the smallest bubble.
    c) If I chew Juicy Fruit, I will blow the largest bubble.
    d) If the subject chews Hubba Bubba, then the subject will blow the smallest bubble.

26. Does the amount of water affect the plant's height? Which hypothesis is correct?
    a) If the plant receives 20ml of water, then the plant will grow the shortest.
    b) The plant will receive 20 ml of water, then the plant will grow the tallest.
    c) If the plant receives, then the plant will grow the tallest.
    d) If the plant receives 10 ml of soda, then it will grow tall.

QUALITATIVE DATA

a. Ethnographic

– Purpose: To describe culture's characteristics

- Outcome: Description of culture

engage ourselves in target participant's environment to understand the culture better.

- Data collection: observation & interviews

- Experience first hand environment and known as participant observer

- Staying dekat kg orang asli to know their challenges/ behaviour.

b. Case Study

- Purpose: To describe in-depth experience of a person, family, group, community, institution

- Data collection: Interviews, documents, reports, observations

c. Phenomenological

- Purpose: To describe experience as people are lived in the situation

- Outcome: Finding from subject's perspectives

- Data collection: Interviews

27. Identify what type of Qualitative Research is the topic: Mangyan Courtship Dance: A Lost Tradition
    a) Biography
    b) Phenomenological
    c) Grounded Theory
    d) Ethnography
    e) Case Study

28. Identify what type of Qualitative Research is the topic: Battered Husbands: a new form of slavery?
    a) Phenomenological
    b) Ground theory
    c) Ethnography
    d) Case Study
    e) Biography

29. Identify what type of Qualitative Research is the topic: Marital failures for underage couples.
    a) Phenomenological
    b) Biography
    c) Ground Theory
    d) Ethnographic
    e) Case Study

30. Identify what type of Qualitative Research is the topic: Child rearing practices of Bajao
    a) Phenomenological
    b) Ethnographic
    c) Case Study
    d) Biography

31. Questionnaires can ONLY be quantitative
    a) True
    b) False

32. Which of the following is a disadvantage of interviews?
    a) You can read the interviewee's body languge
    b) Opportunity to clarify questions
    c) Obtain quantitative and qualitative data
    d) Anonymity of interviewee is lost and may impact on responses

33. Quantitative methodologies rely on the researcher's ability to...
    a) Interpret open-ended questions
    b) Present results without interpretation
    c) Construct appropriate research questions
    d) Collect information from a small sample size

34. In which of the following are both research methodologies best described as qualitative?
    a) Closed ended questionnaire, structured interview
    b) Case study, statistical analysis
    c) Content analysis, observation using data recording sheet
    d) Open-ended questionnaire, unstructured interview

35. Which combination of type of research and research characteristic best describes a focus group?
    a) Primary research / an interview schedule is often used
    b) Secondary research / provides projections into the future
    c) Primary research / questionnaires are necessary
    d) Secondary research / provides generalisations of a social group

36. Research aimed at gathering an in-depth understanding of an issue by way of open-ended questioning, non-statistical research techniques, or value-based observations.
    This describes which of the following?
    a) Quantitative Research
    b) Qualitative Research

37. Which of the following is the correct sequence when undertaking social research?
    a) Collect information, develop a question, communicate findings, interpret information
    b) Collect information, develop a question, interpret information, communicate findings
    c) Develop a question, collect information, communicate findings, interpret information
    d) Develop a question, collect information, interpret information, communicate findings

38. Which of the following is a characteristic of BOTH statistical analysis and closed-ended questionnaires?
    a) Direct quotations from primary data are emphasised
    b) Comparisons may be made from structured data collection
    c) Quantitative information is used to explore subjective experiences
    d) A randomly selected sample is used as a part of an interactive process

39. Which of the following is an ethical issue that could arise when using observation as a research method?
    a) Not being able to record conversations
    b) Observing people outside their natural setting
    c) Researchers not explaining the reason for their presence
    d) Persons altering their behaviour in the researcher's presence

DATA COLLECTION

1. PRIMARY – gather from our own investigation

a. Quantitative (involves numerical data, measurements)

- Questionnaire/ Survey
- Observation
- Experiment/ Simulation
- Email

b. Qualitative (conducted verbally)

- Interviews
- Focus Group
- Case Study
- Human Observation

2. SECONDARY – gather from others research

- published materials

- must be refer correctly

- Records
- Documents
- Journal articles

40. Sources of Data Collection
    a) Interview and observation
    b) Questionnaires and survey
    c) Primary sources and secondary sources
    d) Books and journal

41. What is primary source?
    a) Data gather from previous research
    b) Your own data collection from own investigation
    c) The first data acquired
    d) Your own created data

42. One of the guidelines when making survey questions is to create questions that are easy to tabulate or analyse.
    a) True
    b) False

43. When creating question, you want to avoid:
    a) Biased questions
    b) Questions that assume what they ask
    c) Double-barreled questions
    d) All of the above

44. What is secondary source?
    a) Interview session with the sample
    b) Data collect from an experiment
    c) Any data gained from a survey or questionnaires
    d) Publications, government documents, brochures, newsletters, annual reports

45. One of the guidelines when making survey questions is to create questions that are easy to tabulate or analyse.
    c) True
    d) False

46. Which one is a good question?
    a) What do you think about parking?
    b) Do you believe that the parking situation on campus is okay?
    c) What is your opinion of the parking situation on campus?
    d) Do you believe that the parking situation on campus is problematic?