

Using all the google docs in the folder 1. HowToStudyScientificPapersPostersAndGrants, create 50 homework exercises with multiple choice, fill in the blanks, matching etc. type of questions. Don't show the answers. (Use the language of a 15 year old).

Absolutely! Let's tackle this task.

Folder Overview:

The "1. HowToStudyScientificPapersPostersAndGrants" folder contains a collection of resources designed to help someone, particularly a 15-year-old, understand and engage with scientific research. It covers various aspects of scientific papers, including how to read them, write them, understand the publishing process (like peer review), and grapple with issues like reproducibility in science. There are also materials on specific scientific topics (like black holes and Martian images) and even on Carnatic music, highlighting different forms of analysis.

Homework Exercises (Language of a 15-Year-Old):

Okay, let's create 50 homework exercises to test your understanding of the stuff in that folder! No answers provided, so get ready to think!

Multiple Choice:

1. When you're first looking at a scientific article, which part should you read to get a quick idea of what it's about?

a) The methods b) The introduction c) The abstract d) The results
2. What does it mean for research to be "openly available"?

a) It's kept secret b) Only scientists can read it c) Anyone can read it for free d) It costs a lot of money
3. What's "peer review" in the science world?

a) Scientists reviewing their own work b) Experts checking each other's work c) The public reviewing papers d) Editors reviewing book reviews
4. What's "p-hacking" or "data dredging"?

a) Cleaning up data b) Making data look better than it is c) Storing data in a database d) Presenting data visually
5. Which section of a scientific paper tells you exactly how the experiment was done?

a) Introduction b) Results c) Discussion d) Materials and Methods
6. What does "reproducibility" in science mean?

a) Making a copy of the paper b) Doing the experiment again and getting the same results c) Rewriting the paper d) Printing lots of copies
7. Google Scholar is mostly used for:

a) Watching videos b) Searching for music c) Finding scientific papers d) Playing games

8. In a scientific paper, where do you find the explanation of what the results actually *mean*?
- a) Abstract b) Results c) Discussion d) Introduction
9. The "fuzzball proposal" is an idea about what?
- a) How stars are formed b) Tiny animals c) Black holes d) Weather patterns
10. Which part of the brain is really involved in processing fear?
- a) Hippocampus b) Cerebellum c) Amygdala d) Prefrontal Cortex
11. In Carnatic music, what does "Raga" refer to?
- a) Rhythm b) Lyrics c) Melody d) Instruments
12. A "preprint" of a paper is:
- a) The published version b) A draft before it's officially published c) A review by someone else d) A summary for kids
13. "Quantitative analysis" means looking at data with:
- a) Opinions b) Feelings c) Stories d) Numbers and statistics
14. What does "MAHLI" stand for in the article about Martian images?
- a) Martian Astronomical High Level Imaging b) Mars Hand Lens Imager c) Mega Aperture Lunar Imager d) Microscopic Analysis of Light Intensity
15. In Carnatic music, what is "Arohanam"?
- a) The descending order of notes b) The ascending order of notes c) The rhythm d) The instrument type
16. What's a problem with only publishing "positive" results in science?
- a) It takes too long b) It makes journals more expensive c) It gives a wrong idea of what's really happening d) It's not fun
17. When people talk about "data dredging," what are they concerned about?
- a) Messy data b) Manipulating data to get a certain result c) Not enough data d) Old data
18. What's one big reason scientific research might be hard to reproduce?
- a) Scientists are lazy b) The original paper might not have enough details c) All experiments are different d) It's too cold in the lab
19. A "review article" does what?
- a) Presents new research b) Summarizes existing research c) Tells a story d) Argues a point
20. If someone says there's a "reproducibility crisis" in science, what do they mean?
- a) Too many papers are being printed b) Many research findings are hard to repeat c) Nobody is reading the papers d) All scientists are copying each other

Fill in the Blanks:

1. The _____ section of a paper explains why the research is important.

2. Making research openly available means it's _____ for anyone to access.
3. _____ Scholar is a website for finding science papers.
4. The _____ section is where scientists interpret their results.
5. The _____ is a part of your brain involved in fear.
6. In Carnatic music, _____ is like the beat or rhythm.
7. Papers that are posted online before they're officially published are called _____.
8. _____ analysis uses numbers and statistics.
9. The _____ section of a paper is like a movie trailer, giving you a short summary.
10. One problem with reproducibility is that sometimes the original paper has _____ details.

Matching:

1. Match the part of a paper with what it does:
 - Abstract - _____
 - Methods - _____
 - Results - _____
 - Discussion - _____

a) Explains what the results mean b) Lists the actual findings c) Summarizes the whole paper d) Tells how the experiment was done
2. Match the research type:
 - Theoretical - _____
 - Experimental - _____
 - Computational - _____
 - Observational - _____

a) Using computers b) Doing experiments in a lab c) Just watching what happens d) Thinking about ideas and theories
3. Match the music term:
 - Raga - _____
 - Talam - _____
 - Arohanam - _____

a) The beat or rhythm b) The melody c) Ascending notes
4. Match the issue with the description:
 - Reproducibility problem - _____
 - Publication bias - _____
 - P-hacking - _____

a) Changing data to make it look better b) Only publishing "good" results c) Difficulty repeating experiments
5. Match the thing in space:
 - Black Hole - _____
 - Fuzzball proposal - _____

a) Usual idea of a dense object b) New idea of it being a "fuzzy" ball

Short Answer:

1. Why is it important for scientists to try to reproduce each other's work?
2. What are two ways you can find reliable science papers?
3. What's the difference between the "Results" and "Discussion" sections of a science paper?
4. What's one thing that can make analyzing images from Mars tricky?
5. Why might it be a problem if journals only publish "positive" results?

True/False:

1. The abstract is always written first.
2. Peer review means your friends look at your paper.
3. Open access means only scientists can read it.
4. The amygdala is only involved in fear.
5. Quantitative data is about numbers and measurements.
6. A preprint is the final published version of a paper.
7. "Data dredging" is a good research practice.
8. Google Scholar is for watching videos.
9. Raga is another word for rhythm in music.
10. It's okay to make up data in the results section.

Let me know if you need anything else!