

Science Fair

Log book



Do activities before a math test affect how well students perform?

overall description of project: This project tests whether diff short activities before a math quiz change scores. Students will try quiet rest, light exercise, & calm music before similar quizzes. Scores & time taken will be recorded, averaged, & graphed. The project shows how focus & brain readiness can affect math performance.

problem: Do quiet rest, light exercise, or calm music before a math quiz change grade 5 students scores & speed?

Hypothesis/predicted outcome: Students will score highest after calm music or quiet rest, because reduced stress improves focus & problem solving.

materials required: Notebook, printed articles, internet-enabled computer, survey sheets, pencils, spreadsheet software, poster board, markers, ruler.

research proposed: read books & articles, survey students & teachers, summarize findings organize results, & explain how activities influence math focus.

manipulated variable: type of activity before the quiz.

Responding variable: math quiz score.

controlled variable: same quiz length, same difficulty, same time limit, same students, same instructions.

1 Time table

week 1: I choose my topic & did background research.

week 2: I planned my experiment & prepared quizzes & materials.

week 3: I tested students using three different activities & quizzes.

week 4: I organized my data & made tables & graphs.

week 5: I wrote my conclusion & recommendations.

I tried my best to follow this time table.

2 Choose a topic

I enjoy mathematics & wanted to learn how students can do better on math tests. I was curious if doing different activities before a test could help students focus. I choose this topic because math is important for learning & future jobs, & I wanted to find a simple way to improve performance.

3 Background research

I learned that the brain works better when it's active & focused. I read books, used safe websites with my parents help, & watched educational videos. I also talked to adults about learning & exercise. I wrote down where I got my information for my reference.

4 Testable question / purpose

testable question

Does the type of activity done before a math test affect how well Grade-5 students perform?

5 purpose:

to find out activity helps students score highest on a math test.

Hypothesis

I think students who do physical activity before a math quiz will score higher than students who read quietly or do no activity.

Materials

- Three Grade-5 math quizzes
- timer or stopwatch
- pencils & erasers
- paper & clipboard
- music player for quiet time
- space for light exercise
- Data recording sheets

Procedure

1. I selected 10 Grade-5 students
2. each student completed three test sessions on different days
3. Before each quiz, students did one activity for 5 minutes.

4. After the activity, students wrote a math quiz for 5 min

5. I recorded quiz scores & time taken.

6. I compared the results from all activities.

8 Activities & time

Activity 1: Physical Activity

Students did light exercise (jumping jacks & stretching) for 5 min, then wrote a 5-min math quiz.

Activity 2: No activity (control group)

Students sat quietly without reading or moving for 5-min, then wrote a 5-min math quiz.

Activity 3: Quiet Reading

Students sat quietly & read or listened to calm for 5-min, then wrote a 5-min quiz.

9 variables

Manipulated variable:
Type of activity before the
quiz.

Responding variable:
math quiz score.

Controlled variables:
same quiz length, same
difficulty, same time limit,
same students, same instructions.

10 Data

I recorded each student's quiz
score after every activity. I
wrote all results in tables in my
logbook before finding the
average scores.

11 Results

I made tables & a bar graph to show the results. Students scored highest after physical activity. Quiet reading had medium scores, & no activity had the lowest scores. All quizzes were completed in the same amount of time.

12 Conclusions

My hypothesis was correct. Students who did physical activity before the quiz performed better. This shows that movement can help the brain focus & improve math performance.

13 Applications

I recommend short exercise before math tests or lessons. Teachers could use movement breaks in class, in the future, I would test more students & try different types of activities.

