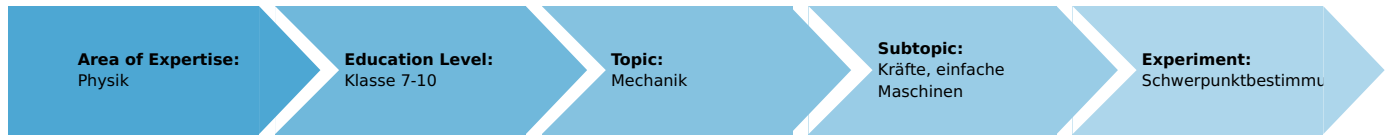


Finding the center of gravity (Item No.: P0999800)

Curricular Relevance



Difficulty



Easy

Preparation Time



10 Minutes

Execution Time



10 Minutes

Recommended Group Size



2 Students

Additional Requirements:

- Template with different figures
- Drawing cardboard (approx. DIN A4)
- Scissors
- Pencil

Experiment Variations:

Keywords:

Task and equipment

Information for teachers

Additional Information

- The students should determine the center of gravity of regular-shaped objects by balancing them on the point of a pencil.
- They should determine the center of gravity of an irregularly-shaped object with at least two plumbs from different suspension points.
- In each case the results can be confirmed by another method.

Finding the center of gravity (Item No.: P0999800)

Task and equipment

Task

How can an object's center of gravity be determined?

The center of gravity of different flat objects is determined by balancing them on the point of a pencil. The results are confirmed by a plumb method for finding the center of gravity.



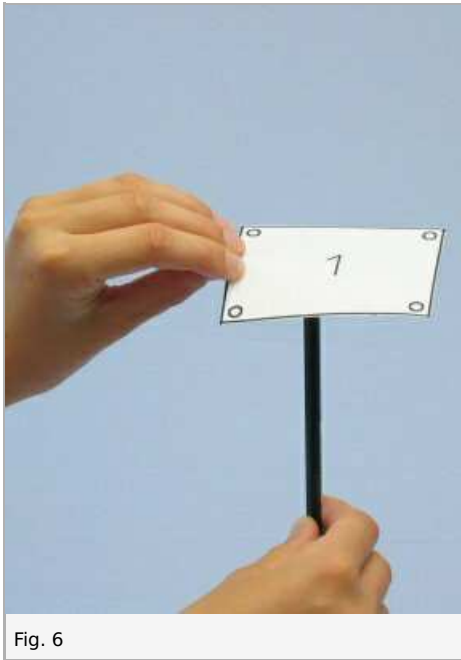
Equipment

Set-up and procedure

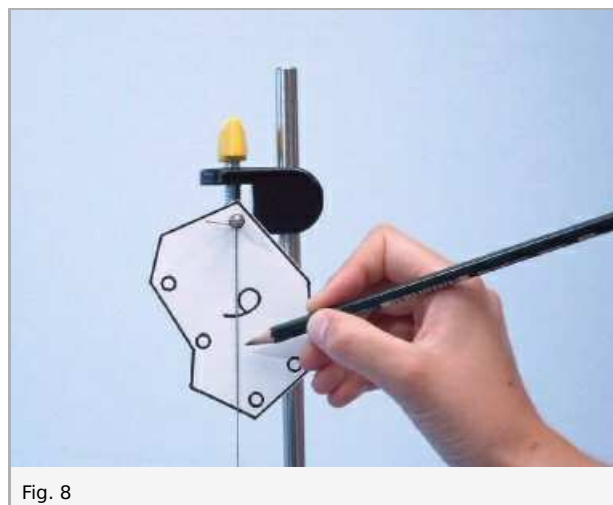
Set-up

Procedure

- Balance the objects 1 - 4 on the point of a sharp pencil and try to determine their center of gravity as exactly as possible (Fig. 6).
- Mark the determined center of gravity as exactly as possible with your pencil.
- Hang each of these objects on the holding pin which is fixed in the bosshead and check whether your marked point lies on the line indicated by the weighted fish line for all of each object's holes (Fig. 7).



- Now, hang the irregularly-shaped plate (no. 6) with one of its holes on the holding pin, mark the fish line's path on the plate (Fig. 8); repeat this by rehanging the plate on several of its other holes.
- Check to see whether the lines intersect in one point.
- See whether the plate is in equilibrium when you hold your pencil under the point of intersection.



Report: Finding the center of gravity

Evaluation - Question 1

Do the marked centers of gravity of objects 1 - 4 lie on the line indicated by the fish line?

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Evaluation - Question 2

What do you conclude from this?

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Evaluation - Question 3

Do you get the same center of gravity with both procedures?

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Evaluation - Question 4

Which method is surely more accurate?

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Evaluation - Additional Task 1

How is the center of gravity of object 5 determined?

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Evaluation - Additional Task 2

Where is the center of gravity in this case?

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Evaluation - Additional Task 3

Can you explain how the center of gravity of object 1 is determined using only a pencil and a ruler?

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