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Edmond Nicolau Technical College FOC\$ANI



WORKSHOP 2 - HÎRÞGOWIN'S "V" CONCEPTS FOR STUDYANDSCIENCEÞTHEM. EXTENSIONS FOR OTHER AREAS.

conferencesPA SCICON - NEW APPROACH TO THE STUDY OF THE DISCIPLINESANDSCIENCEPACT INANDCOLLIES

MULTIPLICATION EVENT E2

EU Erasmus+ KA201 ProgrammeCooperation for innovation and the exchange of good practices "Science Connect" Project REFERENCE NUMBER 2019-1-RO01-KA201-063169

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KNOWANDGOWIN'S "V" TREE

O modalitate simplă și flexibilă de a ajuta elevii să stăpânească structurat cunoștințele

- knowledgeetterea "V" or Gowin(1977) GOWIN, DB (1977). Field of Education. Unpublished manuscript.
- Cornell University, Department of Educaţie GOWIN, DB (1981).
 Education. Ithaca (NI: Cornell University Press). JD NOVAK, DB GOWIN, GT JOHANSEN (1983).
- Using concept mappingetand knowledge mappingetI holdţVshaped studsţii ofetscienceţhe's from high school.

Scientific education, 67, 625-45.

NOWANDGOWIN'S V" TREE Students will benefit from using he leading strategy needle componentțcognitive ion in parallel with the thinking component.

O modalitate simplă și flexibilă de a ajuta elevii să stăpânească structurat cunoștințele



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EXAMPLE 1 1

Conceptual domain

5.Theories and models

The basic corpuscular theory of the constitution of matter

4.Principles and laws

The volume of water displaced by each body corresponds to its own volume

3.concepts

Table

Volume

Density

1. It is the Density of characteristic the property of material? How we can know if a gold ring is really made of gold?



Procedural field

8.conclusions

The m/V ratio is constant for each material, but different from material to material. Therefore, density is a characteristic property of each material. Therefore, a gold ring should have the density of gold!

7.Data processing

Calculate the m/V ratios for each set of bodies; finally the graph m=f(V)

6.Experimental data

<i>m</i> / kg		
//dm ₃		

2.proceeding

Measure mass (scale) and volume (glass of water) differently bodies A, B, C, D, ... from a given material. Different groups will work with different materials (copper, aluminum, steel, ...)

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EXAMPLE 2

Conceptual domain

Theories and models

Geometric optics

Principles and laws The law of reflection

> concepts Angle of incidence Angle of reflection Normal on the surface

1. Sometimes we look at the mirror and see people We can't see directly from our position. WHY?

?

Procedural field

conclusions

The angle of incidence is equal to the angle of reflection. For this reason, when you see someone in the mirror, because the angles are equal the lines joining the two people on the surface and the normal on the surface.

Data processing

Option: Plot the angle of reflection versus the angle of incidence (Note: a straight line is obtained at about 45°)

Experimental data

The angle of incidence		
Angle of Reflection		

proceeding

Focus a beam of light onto a mirror. Measure the angle of incidence and angle of reflection. Repeat this measurement for different angles

Practical activity. Buildţio diagram according to the model discussed, for your field of activity. sendţi diagram built at address_ scicon.romania@gmail.com

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