ACT Up Science

- How well do your students do on ACT science?
- Do you know the benchmark for science?
- Do you know the goals and objectives covered on the ACT?
- Do you think you are preparing students to do well on the ACT?

www.rohmscience.weebly.com

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Is test prep the answer?

According to the UChicago Consortium on School Research:

"You may have put your lesson plans on hold, convinced that months of practicing test questions will boost scores. But guess what? It doesn't help. In fact, sometimes it hurts. ACT scores are actually lower in schools where teachers spend large amounts of class time on test prep. So what works? Good grades. Demanding instruction. An environment focused on preparing students for college."

ACT Up KNOW THE STANDARDS

- Science Curriculum Review Worksheet- handout
  - IOD = interpretation of data
  - SIN = scientific investigation
  - EMI = evaluation of models, inferences, and experimental results
- What is NOT in the standards?

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How to prepare for Data Representation Passages:

1. **Select data from simple or complex data presentation**
2. **Find information in text that describes complex data**
3. **Compare or combine data from simple or complex presentation**
4. **Translate information into a table, graph, or diagram**
5. **Perform interpolation or extrapolation**
6. **Describe how variable values change in relationship to each other**
7. **Determine the mathematical relationship that exists between data**
8. **Analyze presented information when given new information**

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How to prepare for Research Summaries Passages:

1. **Find basic information in text describing experiment**
2. **Understand the tools and functions used in an experiment**
3. **Understand experimental design**
4. **Identify variables and controls in an experiment**
5. **Identify similarities and differences between experiments**
6. **Which experiment used a certain tool or method**
7. **Predict the results of an additional trial**
8. **Determine the hypothesis**
9. **Determine an alternate method for testing hypothesis**
10. **Determine which hypothesis, prediction, conclusion is consistent with data**

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How to prepare for Conflicting Viewpoints Passages:

1. **Identify strengths and weaknesses of models**
2. **Summarize a scientist's point of view**
3. **Identify similarities and differences in arguments**
4. **Make predictions based on a viewpoint**
5. **Identify statements that agree with a viewpoint**
6. **Differentiate between facts and a scientist's opinion**

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Resources for ACT preparation:
ACT.org
Prepscholar.com
Kaplan- has free, live webinars
Varsitytutors.com
Magoosh.com

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Resources for ACT preparation:
Teachers Pay Teachers
www.rohmscience.weebly.com
Google

HAULT method for
reading graphs

H = heading
A = axes
U = units
L = legends
T = trends

Instructions for Teachers Pay Teachers:

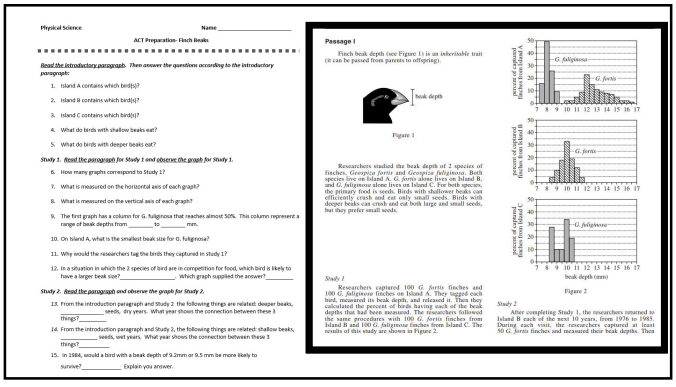
1. Create an account
2. Search:
Double line graph
HAULT method
CER (claim, evidence, reasoning)
Science literacy
ACT science

Graphing and data analysis

3. Set parameters of search by grade, by subject, by price

Teachers Pay Teachers that I referenced today

1. Graphing and Data Analysis: A scientific method activity by Amy Brown Science
2. Analyze and Interpret Data Freebie by Kerry Tracy
3. CER Writing Infographic by I Teach Science And
4. Scientific Method and Germ Theory by Wandering Minds
5. HAULT Method for Data Analysis by House of Science
6. Science Literacy Reading Article and Sub Plan by Tangstar Science



Physical Science Name _____

ACT Preparation- Finch Beaks

Read the introductory paragraph. Then answer the questions according to the introductory paragraph:

1. Island A contains which bird(s)?
2. Island B contains which bird(s)?
3. Island C contains which bird(s)?
4. What do birds with shallow beaks eat?
5. What do birds with deeper beaks eat?

Study 1. Read the paragraph for Study 1 and observe the graph for Study 1.

6. How many graphs correspond to Study 1?
7. What is measured on the horizontal axis of each graph?
8. What is measured on the vertical axis of each graph?
9. The first graph has a column for G. fuliginosa that reaches almost 50%. This column represent a range of beak depths from _____ to _____ mm.
10. On Island A, what is the smallest beak size for G. fuliginosa?
11. Why would the researchers tag the birds they captured in study 1?
12. In a situation in which the 2 species of bird are in competition for food, which bird is likely to have a larger beak size?_____. Which graph supplied the answer?_____

Study 2. Read the paragraph and observe the graph for Study 2.

13. From the introduction paragraph and Study 2 the following things are related: deeper beaks, _____ seeds, dry years. What year shows the connection between these 3 things?_____
14. From the introduction paragraph and Study 2, the following things are related: shallow beaks, _____ seeds, wet years. What year shows the connection between these 3 things?_____
15. In 1984, would a bird with a beak depth of 9.2mm or 9.5 mm be more likely to survive?_____ Explain you answer.

Passage I

Finch beak depth (see Figure 1) is an *inheritable* trait (it can be passed from parents to offspring).

Figure 1

Researchers studied the beak depth of 2 species of finches, *Geospiza fortis* and *Geospiza fuliginosa*. Both species live on Island A. *G. fortis* alone lives on Island B, and *G. fuliginosa* alone lives on Island C. For both species, the primary food is seeds. Birds with shallower beaks can efficiently crush and eat only small seeds. Birds with deeper beaks can crush and eat both large and small seeds, but they prefer small seeds.

Study 1

Researchers captured 100 *G. fortis* finches and 100 *G. fuliginosa* finches on Island A. They tagged each bird, measured its beak depth, and released it. Then they calculated the percent of birds having each of the beak depths that had been measured. The researchers followed the same procedures with 100 *G. fortis* finches from Island B and 100 *G. fuliginosa* finches from Island C. The results of this study are shown in Figure 2.

Figure 2

Study 2

After completing Study 1, the researchers returned to Island B each of the next 10 years, from 1976 to 1985. During each visit, the researchers captured at least 50 *G. fortis* finches and measured their beak depths. Then