

PREPARING STUDENTS FOR THE ACT THROUGH CORE INSTRUCTION

Research to Practice

Rebecca Peterson, College and Career Readiness | ACT

Megan Lopez, Secondary Language Arts Assessment

Whitney Barlow, Mathematics Assessment

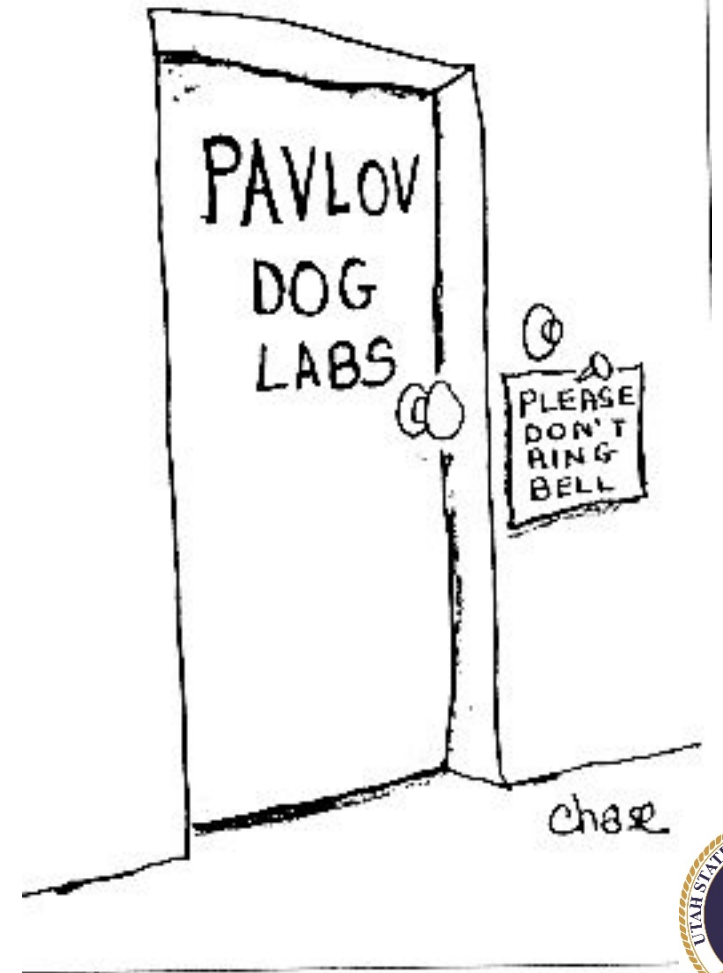
Scott Roskelley, Science Assessment



LEARNING INTENTIONS

Be able to describe

- What does and does not work in ACT prep
- Alignment between the ACT and Utah Core Standards
- Instructional practices in English, math, and science that improve ACT outcomes




POLL!

What kind of preparation makes the biggest difference in ACT scores?

 A. Student participation in an **ACT prep program** to remediate academic gaps

 B. Practicing test questions and strategies **during class time** to ensure **extra practice time**

 C. **Challenging** academic atmosphere, curriculum, and **critical thinking** skills

 **Challenging academic atmosphere, curriculum, and critical thinking skills**



**HIGH QUALITY CORE INSTRUCTION =
BETTER ACT RESULTS THAN INTENSIVE
ACT PREP DURING CLASS TIME ¹**

Challenging academic atmosphere, curriculum, and critical thinking provides best shot at ACT success

WHAT DOESN'T WORK

Spending *class time* on test prep *does not* make students more prepared for the ACT. ¹

What works?



RESEARCH ABOUT ACT PREP

- Challenging academic atmosphere
- Demanding academic curriculum
- College prep attitude/environment for all students
- Critical thinking skills
- Good school atmosphere
- High student on-task rate



¹ University of Chicago Urban Education Institute. (2008). *ACT Test Prep - More is Not Better*.

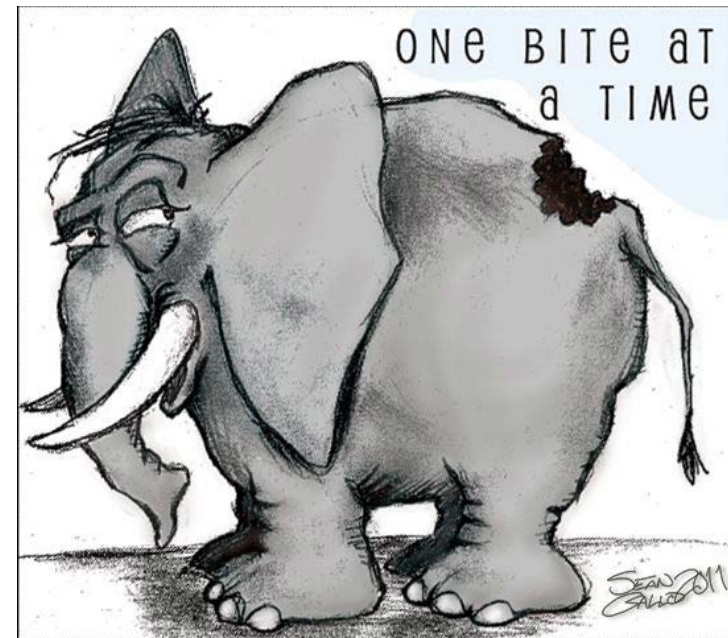


RESEARCH CONCLUSIONS

80% of 11th graders & 60% of teachers – thought scores due primarily to test-taking skills ¹

Not the case! ²

- ACT requires long-term skills
- Higher-order analytical skills
- Problem-solving skills
- Complex reading
- Data analysis
- Attention to details
- Ability to write well



¹ University of Chicago Urban Education Institute. (2008). *ACT Test Prep - More is Not Better*.

² ACT. (2017). *Technical manual*. Retrieved from http://www.act.org/content/dam/act/unsecured/documents/ACT_Technical_Manual.pdf



LONG-TERM PREPARATION MATTERS

Research says . . .

- Children who do not read proficiently by the end of third grade are *four times* more likely to leave school without a diploma than proficient readers (Hernandez, 2011)



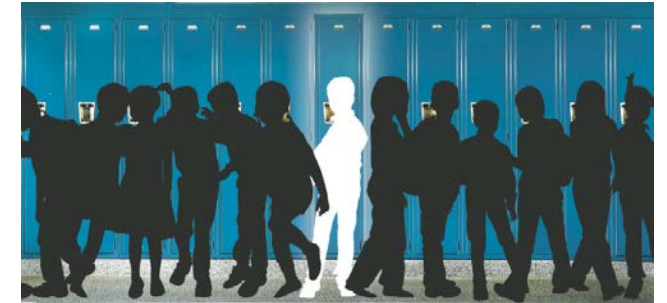
Hernandez, D. (2011). *Double jeopardy: How third-grade reading skills and poverty influence high school graduation*. Baltimore: The Annie E. Casey Foundation, p. 3.



LONG-TERM PREPARATION MATTERS, CONT.

Students who arrive at school ready to learn but then miss 10 percent of kindergarten and first grade score 60 points below regularly attending students on third-grade reading tests, on average (Applied Survey Research, 2011).

Absenteeism strongly correlates with poor student outcomes, K – 12 (Allensworth & Easton, 2007).

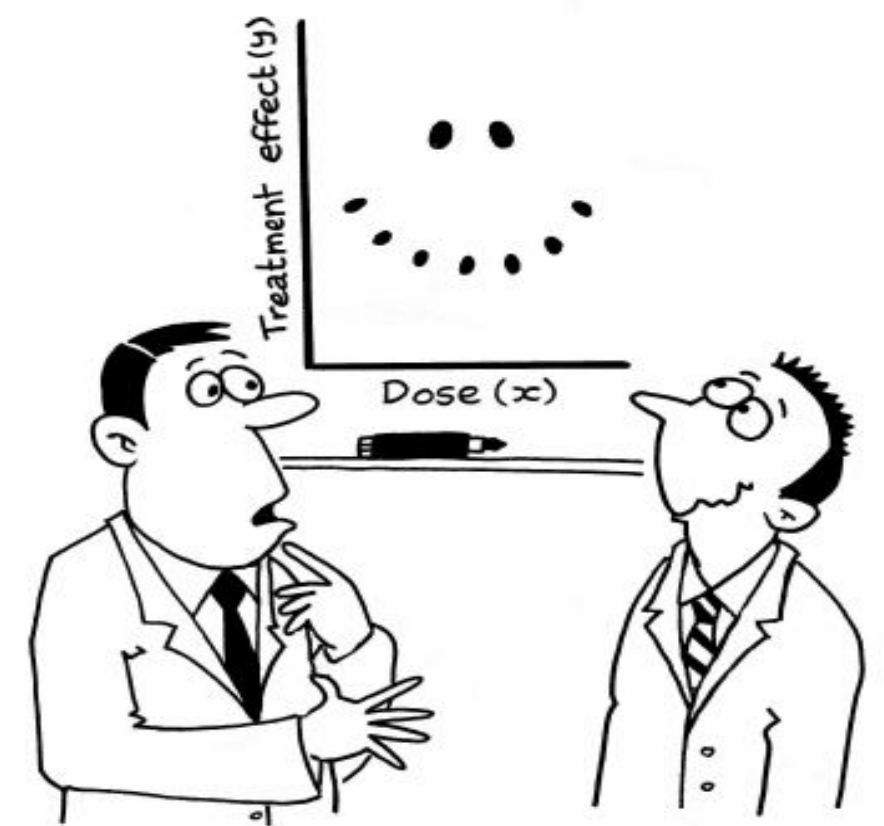


Allensworth, E. M., & Easton, J. Q. (2007). *What matters for staying on track and graduating in Chicago Public High Schools: A close look at course grades, failures, and attendance in the freshmen year*. Chicago: Consortium on Chicago School Research. Retrieved from <http://ccsr.uchicago.edu/sites/default/files/publications/07%20What%20Matters%20Final.pdf>

Applied Survey Research. (2011). *Attendance in early elementary grades: Associations with student characteristics, school readiness, and third grade outcomes*. Mini-report prepared for Attendance Works. Watsonville, CA: Applied Survey Research. Retrieved from www.attendanceworks.org/wordpress/wp-content/uploads/2010/04/ASR-Mini-Report-AttendanceReadiness-and-Third-Grade-Outcomes-7-8-11.pdf

ONE MORE . . .

Mastery of early math skills predicts future math achievement **and** future reading achievement - just as reliably as early literacy mastery of vocabulary, letters and phonetics predicts later reading success (Duncan et al., 2007).



"It's a non-linear pattern with outliers.....but for some reason I'm very happy with the data."

FOR MORE INFORMATION . . .

Predictors of Post-Secondary Success from
American Institutes for Research

(https://ccrscenter.org/sites/default/files/CCRS%20Center_Predictors%20of%20Postsecondary%20Success_final_0.pdf)

Pre-K – post secondary



INSTRUCTIONAL PRACTICES IN ENGLISH & WRITING

Using Core
instruction to build
skills

HOW TO PREP — ENGLISH/LA CLASSES

KEY WORDS?

- Ask students to **improve** a piece of writing
- Have students **explain** how writers use tools like symbolism
- Students should **discuss how** culture, time, or place **affects** an author's writing
- Get students to **debate** the meaning of their readings
- Have students **rewrite** papers or essays **in response** to comments
- Teach the Core

University of Chicago Urban Education Institute. (2008). *ACT Success: Good Grades, Not Test Practice*



HOW TO PREPARE FOR ACT ENGLISH

- Shmoop
- Read, revise, and edit peer/mentor essays
- Grammar games for review
- Don't worry about ancient Latin-based grammar rules, or the punctuation and grammar rules that vary between style guides
- Focus on how punctuation and grammar affect meaning

Shmoop. (2017). Retrieved from:
<https://schools.shmoop.com/act/review-topic-EE5BB5743DC943E4A5BF47131108E695-8C6881B166CB4ACEBEE248C39360B6DA>



HOW TO PREPARE FOR ACT READING

- Shmoop
- Expose students to **multiple texts** in these subjects: Prose fiction, literary narrative, social studies, humanities, natural science
- Identify **explicit** information and **inferred** conclusions
- Practice active **close reading** (note taking)
- Compare multiple texts

Shmoop. (2017). Retrieved from:

<https://schools.shmoop.com/act/review-topic-19B82BAD88F949158D9B8DA10881CF74-8C6881B166CB4ACEBEE248C39360B6DA>



HOW TO PREPARE FOR ACT WRITING

- Discussions and debates
- Write with different purposes for different audiences
- Analyze issues and identify authors' perspectives and purposes
- Write with a time limit to practice clearly conveying ideas within a limited timeframe
- Utah Compose
- Shmoop
- Have students practice hand writing essays
- Instruct on multiple text structures
- Use outlines

ACT. (2017). *Preparing for the ACT Test*. Retrieved from: <http://www.act.org/content/dam/act/unsecured/documents/Preparing-for-the-ACT.pdf>





INSTRUCTIONAL PRACTICES IN MATH

Using Core
instruction to build
skills

HOW TO PREP – MATH CLASSES

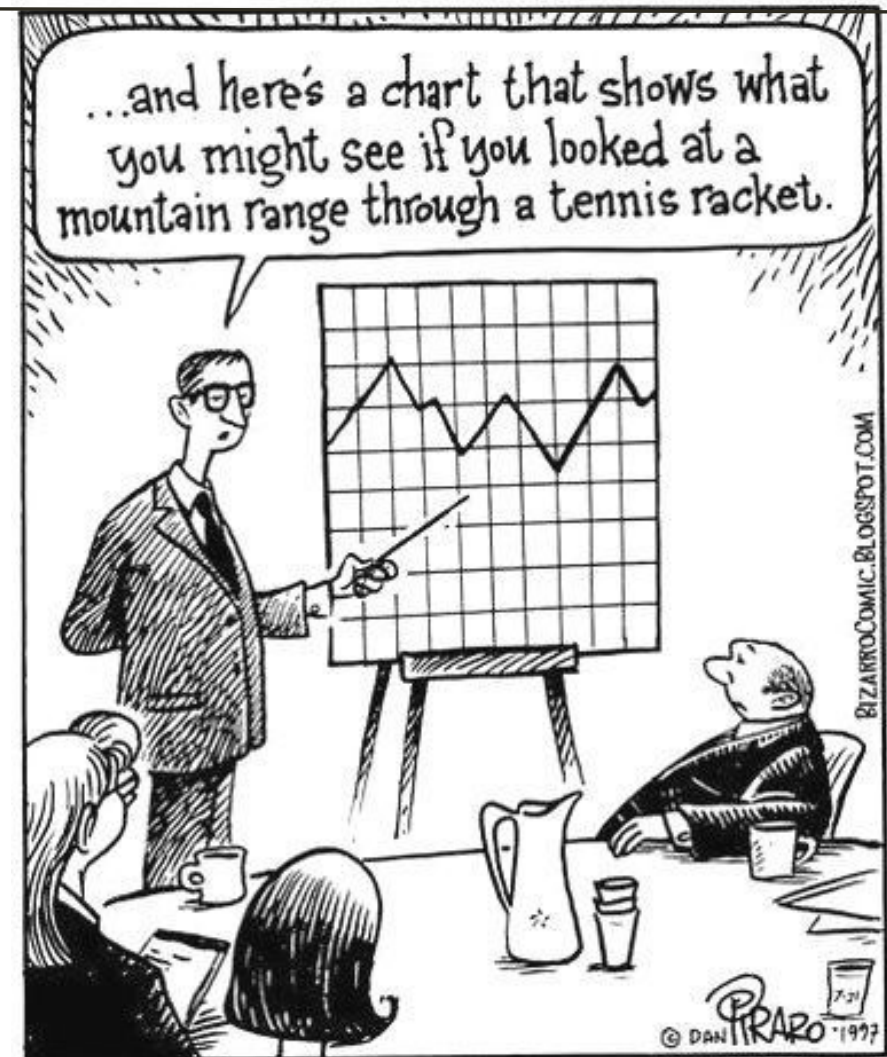
KEY PHRASES?

Have students **discuss** **different** solutions to problems with each other

Have students **explain** the process for finding solutions in different ways (think-alouds)

Use graphing calculators

University of Chicago Urban Education Institute.
(2008). *ACT Success: Good Grades, Not Test Practice*



HOW TO PREPARE FOR ACT MATH

- Shmoop
- **Expose** students to problems presented in a variety of ways: graphical, story problems, equations, and tables
- Remind students to show work
- **Practice** different problem solving techniques

Shmoop. (2017). Retrieved from:
<https://schools.shmoop.com/act/topics.html#math>



HOW TO PREPARE FOR ACT MATH, CONT.

- Teach the Core
- Use the Math Prompts in Utah Compose
- Embed ACT practice problems in classwork (bell work, spiraled review problems, exit tickets)

<https://schools.shmoop.com/act/review-drill-107BA52A08574FBA9A847802CB60B6B4-8C6881B166CB4ACEBEE248C39360B6DA-D635E5EFA97C45C0B22021B0E475A13F>

1. Which of the following values of x make the equation $x^2 + 6x = 0$ true?

I. -6
II. 0
III. 6

A. I only
B. II only
C. III only
D. I and II
E. II and III

[Come Back to This](#) [I'm Guessing](#) [Remove My Choice](#)

2. Which expression can be used to find the solutions to the equation $6x^2 - 22x + 12 = 0$?

F. $(6x - 6)(x - 2) = 0$
G. $(2x - 6)(3x - 2) = 0$
H. $(2x + 6)(3x + 2) = 0$
J. $(2x - 3)(3x + 4) = 0$
K. $(6x - 3)(x - 4) = 0$

[Come Back to This](#) [I'm Guessing](#) [Remove My Choice](#)

3. What is the sum of the solutions to the equation $x^2 + 6x + 8 = 0$?

A. -6
B. -4
C. -2
D. 2
E. 8

[Come Back to This](#) [I'm Guessing](#) [Remove My Choice](#)

4. What is the least value of y that satisfies the equation $2y^2 + 7y + 3 = 0$?

F. 3
G. $\frac{1}{2}$
H. 0
J. $-\frac{1}{2}$
K. -3

[Come Back to This](#) [I'm Guessing](#) [Remove My Choice](#)

5. When it is graphed on the standard (x, y) coordinate plane, which of the following equations has an x -intercept at 1?

A. $y = x^2 - 3x + 4$
B. $y = x^2 - 2x + 1$
C. $y = x^2 - 2x - 1$
D. $y = x^2 + 4x + 6$
E. $y = x^2 + 4x + 8$

[Come Back to This](#) [I'm Guessing](#) [Remove My Choice](#)



BIG IDEAS TO REVIEW

- **Pre-Algebra:** Elementary Operations (Finding exponents and roots, taking absolute value, ordering lists), Basic Equations and Inequalities, Simple Statistics (measures of central tendency, basic probability, reading graphs and charts)
- **Elementary Algebra:** Exponent Operations, Building Expressions and Functions from words and situations, Expand and Condense Polynomials, Factoring
- **Intermediate Algebra:** Simplify Rational Expressions, Matrices and Complex Numbers, Systems and Quadratic Formula



BIG IDEAS TO REVIEW, CONT.

- **Coordinate Geometry:** Graph: points, slopes of a line, inequalities, and linear equations. Recognize the graphs of parent functions. Know the basic formulas (slope, midpoint, distance, and conics)
- **Plane Geometry:** Area, volume, side length, and surface area formulas for basic shapes (triangle, rectangle, and circle). Definitions and proof techniques
- **Trigonometry:** 6 Trig Functions, radian measure and the unit circle, trig on the calculator

<https://schools.shmoop.com/act/review-topic-A9A58F1A679C490BB7927D1657AAF3EB-8C6881B166CB4ACEBEE248C39360B6DA>





INSTRUCTIONAL PRACTICES IN SCIENCE

Using Core
instruction to build
skills

SCIENCE CORE STANDARDS & ACT

- Aligns with ILOs (Intended Learning Outcomes)
- Focus on skills and scientific practices

Ex. Biology, Standard 1, Objective 2c

2. c. Distinguish between inference and evidence in a newspaper, magazine, journal or Internet article that addresses an issue related to human impact of cycles of matter in an ecosystem and determine the bias in the article.



SCIENCE CORE STANDARDS & ACT, CONT.

Ex. Earth Science, Standard 1, Objective 1b

1. b. Explain how Earth's systems are dynamic and continually react to natural and human caused changes.

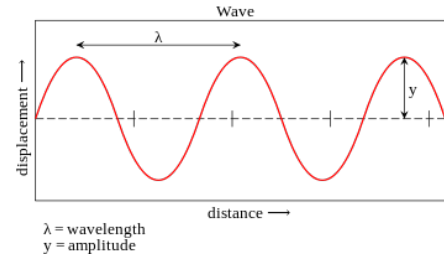


SCIENCE CORE STANDARDS — LET'S PRACTICE!

Let's try one more!

Physics, Standard 5, Objective 1b

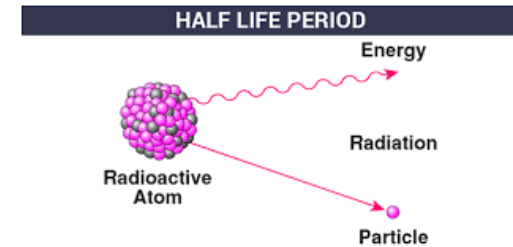
1. b. Investigate and compare reflection, refraction, and diffraction of waves.



And just for good measure:

Chemistry, Standard 2, Objective 2b

2. b. Interpret graphical data relating half-life and age of a radioactive substance.



KEY PHRASES IN STANDARDS AND OBJECTIVES

- Use observations to draw conclusions
- Identify/examine evidence
- Describe the evidence
- Design and test a model
- Plan and conduct and experiment
- Investigate possible effects
- Interpret observations and data

- Use data to draw valid conclusions
- Classify items

What do you notice about all of the key phrases?

- Are action words (skills) that can be applied to any subject – cross-curricular too.



SCIENCE CROSSWALK SHOWS . . .

- The “big ideas” that cross content areas are the items that are most likely to be assessed
- Focus on ILOs (practices)
- Table time – highlight key phrases – discuss with your table group



HOW TO PREP – SCIENCE CLASSES

Students should use evidence/data to support arguments or hypotheses

Have students generate their own hypotheses

Offer opportunities to interpret information from graphs and tables

Read and discuss scientific reports

- good source – [Science Daily](https://www.sciencedaily.com/) (<https://www.sciencedaily.com/>)

Ask students to write lab reports



HOW TO INCORPORATE ACT PRACTICE

Bellwork:

- Find questions on Shmoop or Utah Futures that relate to your content area.
- Have students work on questions at the start of class.
- Follow up with think-a-louds to go through answer process (model using logic to answer questions, eliminating incorrect options)
- Point out ACT-science skill being assessed by the question

During instruction:

- Pick a focus area and have students highlight how they are applying the skill (i.e., using data to draw conclusions, identifying evidence, using models, etc.)



LOOKS LIKE, SOUNDS LIKE

Bellwork:

- Find practice question in your notes packet.
- Read the question, select the answer
- Go through think-a-loud
- ACT science skill being assessed by the question?



SCIENCE AND THE ACT — WHAT CAN YOU USE?



Table talk:

How can you/your teachers use this information to build ACT-related skills in your school?





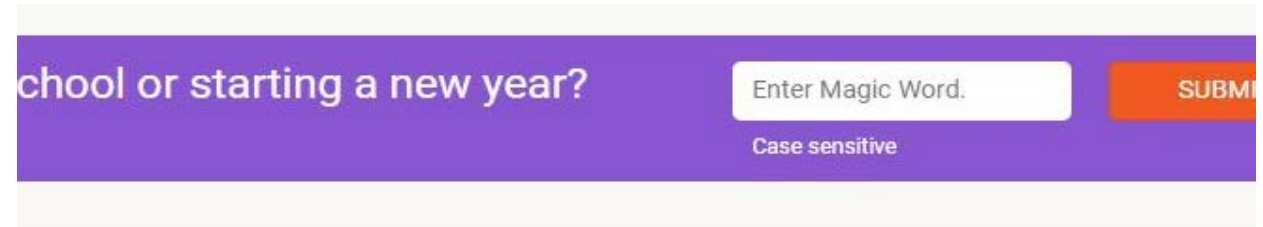
TOOLS YOU CAN USE

[Login to Shmoop](#)

LOGIN OR CREATE A TEACHER ACCOUNT

For a new account:

- Go to Schools.shmoop.com
- In the purple box, enter the teacher magic word, "CANYONLANDS" (in all caps)
- Choose school
- Click "Create teacher account"
- Enter new user information
- Click "Create Account"



school or starting a new year?

Case sensitive

SUBMIT

FINDING REVIEW TOPICS

Click on “Test Prep”

Click on “ACT”

Click on the “Review Topics” tab

Choose a subject to find review material, study strategies, and review

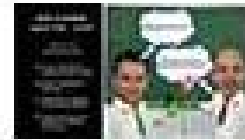


LET'S TRY IT

- Explore the review topics tab, practice exams, drills, and videos.
- Find the in-depth explanations and other useful review items embedded in the program.
- How could you use these items in Core instruction?



Conflicting Viewpoints Passage 1



Conflicting Viewpoints Passage 3



CROSS-CURRICULAR PRACTICES

Using Core
instruction to build
skills



IN ALL CLASSES

Learn **metacognitive** skills and self-evaluation skills

Students should:

- Read questions **carefully** – determine what the question is asking
- On **timed** multiple-choice tests
 - **Practice** pacing
 - answer the **easiest** questions **first**
 - Use **logic** to answer more difficult questions - try to eliminate incorrect answers and compare answer choices
 - Answer every question (for practice ACT tests)



WHERE TO FIND OUT MORE

More detailed info on the [ACT K12 Educator and Administrator Resources Page](http://www.act.org/content/act/en/products-and-services/the-act-educator/resources.html)

(<http://www.act.org/content/act/en/products-and-services/the-act-educator/resources.html>)

- Technical Manual
- Technical Manual Supplement



TURN TO YOUR NEIGHBOR: 2 MINUTES

What are you currently doing?

What new ideas could you add?

Resources for finding evidence-based practice information:

- What Works Clearinghouse: <https://ies.ed.gov/ncee/WWC/>
- Ideas That Work: <https://ccrs.osepideasthatwork.org/>
- IRIS center at Vanderbilt University Evidence-based practice summaries: http://iris.peabody.vanderbilt.edu/ebp_summaries/
- Promising Practices Network: <http://www.promisingpractices.net/programs.asp>
- Visible Learning Influences and Effect Sizes: <https://visible-learning.org/hattie-ranking-influences-effect-sizes-learning-achievement/>



UPCOMING TRAININGS

How can I get more help and information?

ACT-SPONSORED TRAININGS

January 18th 2018, 12:30 –
2:30 PM

- In-person ACT training on testing administration
- Basement west, USBE



USBE TRAININGS



Preparing Students for the ACT through Core instruction

- January 9th, 9-11 AM at USBE

Register here: <https://www.surveymonkey.com/r/TXD5XRG>

Preparing for Smooth Sailing on Test Administration Day (proctoring prep, new test administrators, etc.)

- January 10th 1-3 PM, USBE

Register here: <https://www.surveymonkey.com/r/TH7XT27>



QUESTIONS? SUGGESTIONS?

Email:

Rebecca Peterson, M. Ed., College and Career Readiness | ACT

Rebecca.peterson@schools.utah.gov

Megan Lopez, Secondary Language Arts Assessment

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