


ipdae  INSTITUTE FOR THE PROFESSIONAL DEVELOPMENT OF ADULT EDUCATORS

## The Science and Social Studies Challenge

September 6, 2017

[www.floridaipdae.org](http://www.floridaipdae.org)

This training event is supported with federal funds as appropriated to the Florida Department of Education, Division of Career and Adult Education for the provision of state leadership professional development activities.

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ipdae  BY EDUCATORS FOR EDUCATORS Welcome!



**Bonnie Goonen**



**Susan Pittman**



**June Rall**

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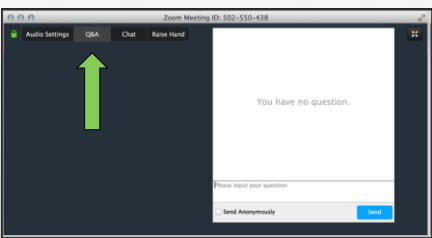
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ipdae  BY EDUCATORS FOR EDUCATORS Webinar Things to Remember

- If you have a question, please type it into the **Q&A** option.



- Attendee microphones will be muted. You will be in **listen only** mode.
- Today's presentation is being **recorded**. It will be archived and available on the IPDAE website within 48 hours.

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**ipdae** BY EDUCATORS FOR EDUCATORS Objectives



In this session, we will :

- Explore the High Impact Indicators and Focusing Themes for social studies and science
- Investigate areas of instruction and strategies for the classroom
- Share resources and ideas
- Discuss next steps in obtaining additional strategies and activities for the social studies and science classroom

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Assessment Targets – PLDs – Hills

## A QUICK REVIEW

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**ipdae** BY EDUCATORS FOR EDUCATORS GED® Performance Levels

Below Passing	Pass/High School Equivalence	GED® College Ready	GED® College Ready + Credit
100 -144	145 - 164	165 - 174	175 - 200
Scores are below the GED® test Passing Standard	Scores at or above the GED® test Passing Standard	Scores indicative of College and Career Readiness	Scores indicative of skills taught in some beginning college-level courses

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What do I teach?

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"Stuff to Teach"

Performance Level Descriptors (PLDs) Helpful tool for the classroom

- Explain in detail the skills students need to demonstrate to pass the test
- Two formats
  - Official Version
  - Test-taker Version

8

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How to use PLDS in the classroom

Use PLDs to:

- Tip 1:** Assess student's current skill level
- Tip 2:** Determine when students are ready to test
- Tip 3:** Shape learning activities for different types of delivery models
- Tip 4:** Add perspective to lesson plans

9

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What are **High Impact Indicators**?

**High Impact Indicators (HIIs):**

- Are important skills that are widely applicable
- May currently receive light coverage during GED® test preparation
- Lend themselves to straightforward instruction
- Are based on research

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Where to access

- **PLDs**  
[www.gedtestingservice.com/educators/pld](http://www.gedtestingservice.com/educators/pld)
- **High Impact Indicators**  
<https://www.gedtestingservice.com/uploads/files/38c313c646bfbdb3afbffb6330df209.pdf>

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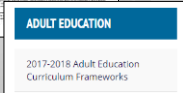
Where to access



**Don't forget . . .**

The Florida Adult General Education Curriculum Framework for GED® Preparation

<http://www.fldoe.org/academics/career-adult-edu/adult-edu/2017-2018-adult-edu-curriculum-frameworko.shtml>

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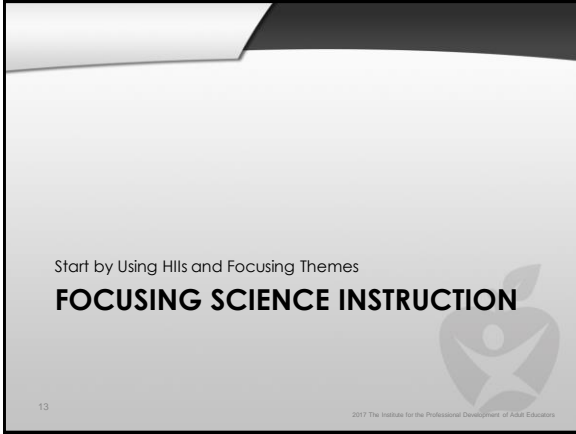
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Start by Using HIs and Focusing Themes

## FOCUSING SCIENCE INSTRUCTION

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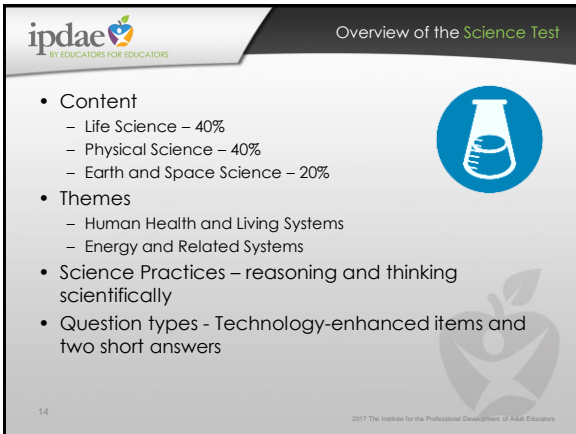
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ipdae BY EDUCATORS FOR EDUCATORS Overview of the Science Test

- Content
  - Life Science – 40%
  - Physical Science – 40%
  - Earth and Space Science – 20%
- Themes
  - Human Health and Living Systems
  - Energy and Related Systems
- Science Practices – reasoning and thinking scientifically
- Question types - Technology-enhanced items and two short answers

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ipdae BY EDUCATORS FOR EDUCATORS Too Much to Teach – Too Little Time

HELP

## Use Focusing Themes

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ipdae Science Focusing Themes

Focusing Themes	<ul style="list-style-type: none"> <li>natural hazards (e.g., earthquakes) and their impact on the earth</li> <li>characteristics of the atmosphere</li> <li>types of planets, asteroids, etc.</li> </ul>	<b>Science Content Topics</b>
	<b>Systems</b>	<b>Earth &amp; Space Science (20%)</b> <ul style="list-style-type: none"> <li>Interactions between Earth's systems and living things</li> </ul>
	<b>Energy and Related Systems</b>	<ul style="list-style-type: none"> <li>Earth and its system components</li> <li>Structure and organization of the cosmos</li> </ul>

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ipdae Science High Impact Indicators

- SP.2.b:** Identify and refine hypotheses for scientific investigations.
- SP.2.e:** Identify and interpret independent and dependent variables in scientific investigations.
- SP.4.a:** Evaluate whether a conclusion or theory is supported or challenged by particular data or evidence.
- SP.6.a:** Express scientific information or findings visually.
- SP.7:** Apply formulas from scientific theories.

17

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**“Science is a way of thinking much more than it is a body of knowledge.”**

*Carl Sagan*  
American Scientist & Writer, 1934 – 1996

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ipdae BY EDUCATORS FOR EDUCATORS Teaching the Big Ideas of Science

- Incorporate inquiry based thematic lessons using focusing themes
- Build students' scientific reasoning skills
- Teach graphics and statistics through a science context
- Integrate the reading and writing process using science texts

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ipdae BY EDUCATORS FOR EDUCATORS Incorporate Inquiry Based Thematic Lessons

Develop science lessons that:

- Allow students to investigate, create, discuss, reflect, and ask about what they are learning
- Incorporate the "big ideas" of the focusing themes
- Connect the different areas of science that are integrated within the theme

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ipdae BY EDUCATORS FOR EDUCATORS Thematic Lesson Plan Example

Check out the lesson plans on Florida IPDAE to get started!

**Antibiotic Resistance**  
[http://www.floridaipdae.org/dfiles/resources/lessons/GED/Science\\_Lesson\\_Plans/SCI\\_Antibiotic\\_Resistance.pdf](http://www.floridaipdae.org/dfiles/resources/lessons/GED/Science_Lesson_Plans/SCI_Antibiotic_Resistance.pdf)

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**Module Science**  
**Lesson The Antibiotic Resistance**

**Objectives and Standards**

**Students will:**

- Analyze and understand their connection of antibiotics and resistance
- Compare and contrast the effect of antibiotic
- Identify the connection the drug has to its development
- Write an expository text such as a paragraph, outline, lecture note, or study guide on the effect of antibiotic

Florida Skills Standard for Educators	Florida Content Standard	Science Standard
<b>Strategic Skills</b> 1. Analyze and understand their connection of antibiotics and resistance 2. Compare and contrast the effect of antibiotic 3. Identify the connection the drug has to its development 4. Write an expository text such as a paragraph, outline, lecture note, or study guide on the effect of antibiotic	<b>Life Science: Human Body and Health</b> 1. Understand the structure and function of the human body 2. Understand the effect of disease on the human body 3. Understand the effect of antibiotic on the human body 4. Understand the effect of antibiotic on the human body	<b>Life Science: Human Body and Health</b> 1. Understand the structure and function of the human body 2. Understand the effect of disease on the human body 3. Understand the effect of antibiotic on the human body 4. Understand the effect of antibiotic on the human body

**Materials**

- Antibiotic resistance and antibiotic
- Internet access or document of video
- One paper and notebook
- Worksheet Antibiotics - How do they work?
- Worksheet Antibiotics - Understanding the How and Why
- Worksheet How do they work?
- Worksheet Antibiotic resistance
- Worksheet Antibiotics - How do they work?
- Worksheet Antibiotics - How do they work?

**Instructional Plan**

**Objective**

By the lesson, students will become familiar with the use of antibiotics and the use of antibiotic resistance. Students will become familiar with the use of antibiotics, as well as writing an expository text (such as a paragraph, outline, or study guide) on the effect of antibiotic.

Florida Lesson Plan for IEP Preparation Page 1 of 31

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**Build Student's Scientific Reasoning Skills**

### GED® Sample Science Questions – Look Familiar?

A rough hypothesis for this investigation is "ocean acidity affects fish hearing."

Which statement represents the **most** appropriate revision for this hypothesis?

- A. Fish hearing improves as a result of elevated dissolved carbonic acid.
- B. Increasing ocean acidity impedes the transfer of sound through water.
- C. Fish lose their hearing as a result of dissolved carbonic acid.
- D. Increasing ocean acidity causes fish to avoid shallow waters.

Identify the independent and dependent variable in the investigation.  
Drag and drop the correct variable into each box.

**Independent**

\_\_\_\_\_

**Dependent**

\_\_\_\_\_

Environmental researchers hypothesize that increasing the number of watering holes will improve the health of a desert biome.  
Which hypothesis would be better for the researchers to use?

- OA. If the carrying capacity doubles, then the number of watering holes will double.
- OB. If the number of watering holes doubles, then the life spans of desert animals will double.
- OC. If the number of watering holes increases, then desert animals will adjust to use more water.
- OD. If the number of watering holes increases, then the populations of desert animals will double.

The farmer hypothesizes that using an irrigation system will increase crop yield (growing and no cover crop).  
Design a controlled experiment that the farmer can use to determine whether his hypothesis is correct.

22

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**Teach Scientific Investigation**

Teach experimental design through real-world application and reporting.

**Observe**  
Make observations

**Question**  
Ask a question or identify a problem

**Research**  
Search for existing answers or solutions

**Hypothesize**  
Formulate a hypothesis

**Procedure/Experiment**  
Design and perform an experiment/collect data

**Draw Conclusions**  
Analyze the data/make conclusions

Results Align with Hypothesis

Results Align Partially or Not at All with Hypothesis

**Communicate**  
Report or share your results

Experimental data becomes background research for new/future project. Ask new question, form new hypothesis, experiment again.

23

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**Teach Scientific Investigation**

- **Formulating a Hypothesis**  
[http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SCI\\_FormulatingHypothesis.pdf](http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SCI_FormulatingHypothesis.pdf)
- **Scientific Inquiry**  
[http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SCI\\_ScientificInquiry.pdf](http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SCI_ScientificInquiry.pdf)

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## Where do we see statistics, data, and math on the test?

- Questions assessing statistics and data indicators on social studies and science
- Use of calculator and formulas in different content areas
- Charts, tables, and graphs

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Teach Multiple Ways to Display, Interpret, and Analyze Data

Stacked Column Graph

Scatter Graph

Pie Graph

Column Graph (using sliding column design)

Area graph

Radar graph

26

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Teach Close Reading and Writing Skills with Science Text

What is close reading? **INVESTIGATE**

“A careful and purposeful rereading of a text.”

Dr. Douglas Fisher  
San Diego State University

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What do close readers do differently?

Close Readers	Not-So-Close Readers
Reread	Read the text once
Focus on the text	Let their thinking wander
Ask questions	Take the text at face value
Pay attention to language	Ignore syntax clues
Uncover deeper meaning	Understand only at surface level

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Use Science Texts

Use science texts when teaching close reading strategies

**Science News for Students**  
<https://www.sciencenewsforstudents.org/>

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Start by Using HILs and Focusing Themes

**FOCUSING SOCIAL STUDIES INSTRUCTION**

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First, let's test your knowledge!

What is the national flower of the United States?

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Overview of Social Studies Test

- Content
  - 50% - Civics and Government
  - 20% - United States History
  - 15% - Economics
  - 15% - Geography and the World
- Themes
  - Development of Modern Liberties and Democracy
  - Dynamic Responses in Societal Systems
- Social Studies Practices – analyzing, thinking, reasoning
- Technology-enhanced question items



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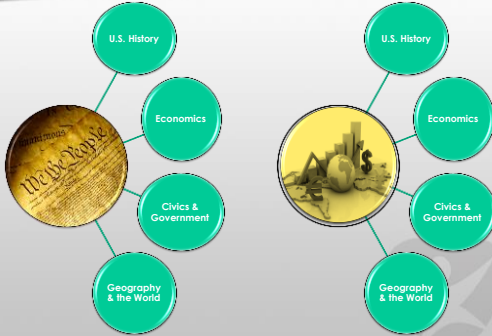
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Focusing Themes



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Social Studies High Impact Indicators

- **SSP.2.a** Determine the central ideas or information of a primary or secondary source document, corroborating or challenging conclusions with evidence.
- **SSP.2.b** Describe people, places, environments, processes, and events, and the connections between and among them
- **SSP.3.c** Analyze cause-and-effect relationships and multiple causation, including action by individuals, natural and societal processes, and the influence of ideas.
- **SSP.5.c** Analyze how a historical context shapes an author's point of view.
- **SSP.8.a** Compare treatments of the same social studies topic in various primary and secondary sources, noting discrepancies between and among the sources.

34

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Teaching the Big Ideas of Social Studies

- Use primary and secondary sources
- Incorporate thematic lessons using focusing themes
- Teach close reading strategies in a social studies context
- Teach visual literacy skills



35

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Why do I need to teach primary sources?

Indicator	What to look for in student work: Students' work shows they have . . .
SSP.2.a: Determine the central ideas or information of a primary or secondary source, corroborating or challenging conclusions with evidence.	<ul style="list-style-type: none"> <li>• differentiated between the concepts of topic and main idea.</li> <li>• identified the topic and/or main idea of a piece of text.</li> <li>• identified supporting details for a given main idea.</li> <li>• summarized a piece of text.</li> <li>• fully explained relevant details in the text that support the main idea.</li> <li>• located a single piece of evidence in the text.</li> <li>• located multiple pieces of evidence in a text.</li> <li>• differentiated between relevant and irrelevant evidence.</li> <li>• used evidence to support or challenge an author's conclusion.</li> </ul>

36

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**Primary Sources:  
Looking for the  
Answer in the  
Constitution**

[http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SS\\_PrimarySourcesLookingfortheAnswerintheConstitution.pdf](http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SS_PrimarySourcesLookingfortheAnswerintheConstitution.pdf)

**Or try a newspaper scavenger hunt!**

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Social Studies - Candidate Name Question 14 of 15

Answer Explanation Flag for Review

The excerpt below is from the U.S. Supreme Court decision in *Youngstown Sheet & Tube Company et al. v. Sawyer* (1952).

MR. JUSTICE BLACK delivered the opinion of the Court.

We are asked to decide whether the President was acting within his constitutional power when he issued an order directing the Secretary of Commerce to take possession of and operate most of the Nation's steel mills. . . .

The President's power, if any, to issue the order must stem either from an act of Congress or from the Constitution itself. . . .

[W]e cannot with faithfulness to our constitutional system hold that the Commander in Chief of the Armed Forces has the ultimate power as such to take possession of private property in order to keep labor disputes from stopping production. This is a job for the Nation's lawmakers, not for its military authorities.

This excerpt is taken from the public domain.

Based on this excerpt, what did the court want to prevent?

- A. judicial interference with legislative powers
- B. executive interference with legislative powers
- C. congressional interference with judicial powers
- D. congressional interference with executive powers

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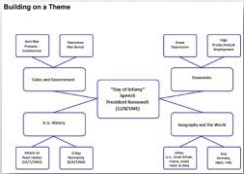
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**One Text - Numerous Concepts**

Start with one primary source to build a social studies thematic lesson



**The Wonderful World of Social Studies**

<http://www.floridaipdae.org/index.cfm?fuseaction=resources.GEDAH&ca gjid=16A9D895BED9EF32AE3AE6A7459237CCC5A604DF5D371E0001D29C40D4820A2C>

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Text Complexity

Vocabulary

Formality of Style

Background Knowledge

Inference Skills

Text Structure

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- Source
- Contextualization
- Close Reading
- Corroboration

• Check out the “Reading Like a Historian” Webinar

<https://www.floridaipdae.org/index.cfm?fuseaction=resources.GEDAHS&cagiid=B64C5DF1B41B55A6105126A95015C843FC59CB1AE84A8641AE3771448C196028>

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- Editorial Cartoons
- Don't Forget About the Graphics

[http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SS\\_EditorialCartoons.pdf](http://www.floridaipdae.org/dfiles/resources/lessons/GED2014/SS_EditorialCartoons.pdf)

<https://www.floridaipdae.org/index.cfm?fuseaction=resources.GEDAHS&cagiid=5C10479B5E628725DD6873C4BBFB5CFE60437A52CA05E32D2EEFC0A0F850B25>

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Putting It All Together



- Teach the "Big Ideas"
- Build students' close reading skills
- Use hands-on demonstrations and experiments
- Have students construct and interpret graphs, charts, tables, diagrams, photographs, and editorial cartoons
- Connect social studies and science to everyday life

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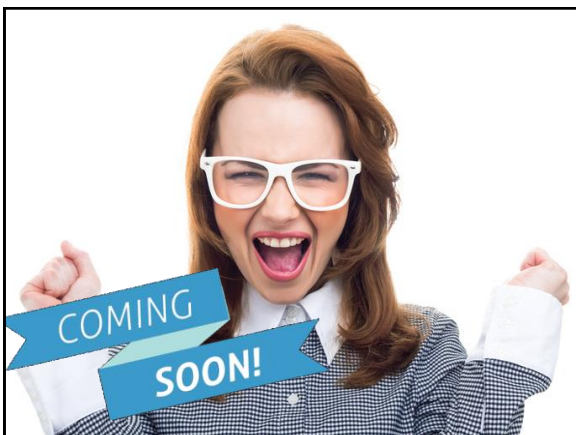
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**GED® Preparation Train the Trainer Workshops for Social Studies and Science**

- Access to materials presented at the GED Testing Service® Summer Conference
- Current information on the GED® Test Outcomes in Florida
- Access to additional materials and strategies for your classroom
- Ability to share information with your fellow educators

[floridaipdae.org](http://floridaipdae.org)

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**“The best professional development is ongoing, experiential, collaborative, and connected to and derived from working with students.”**

Edutopia 2014

*Stay Connected* Always here to assist!  
**The IPDAE Team**

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