Ticket In

Please sign in for PLC

2/10/2020 K-2 Cognitively Complex Tasks Part 3

Cognitively Complex Tasks

Video Reflection:
Stop and Jot

Why is it essential that we engage students in Problem Solving?

Problem Solving Student Designed Task

3rd-5th Ticket In

Please sign in for PLC

2/11 3rd-5th Engage in Cognitively Complex Tasks Part 3

This is the first year that we will have 1:1 for AzM2 & AIMS Science testing. YAY!

We would like to test our technology tomorrow at 8:05am

Can you please be the role of student by:

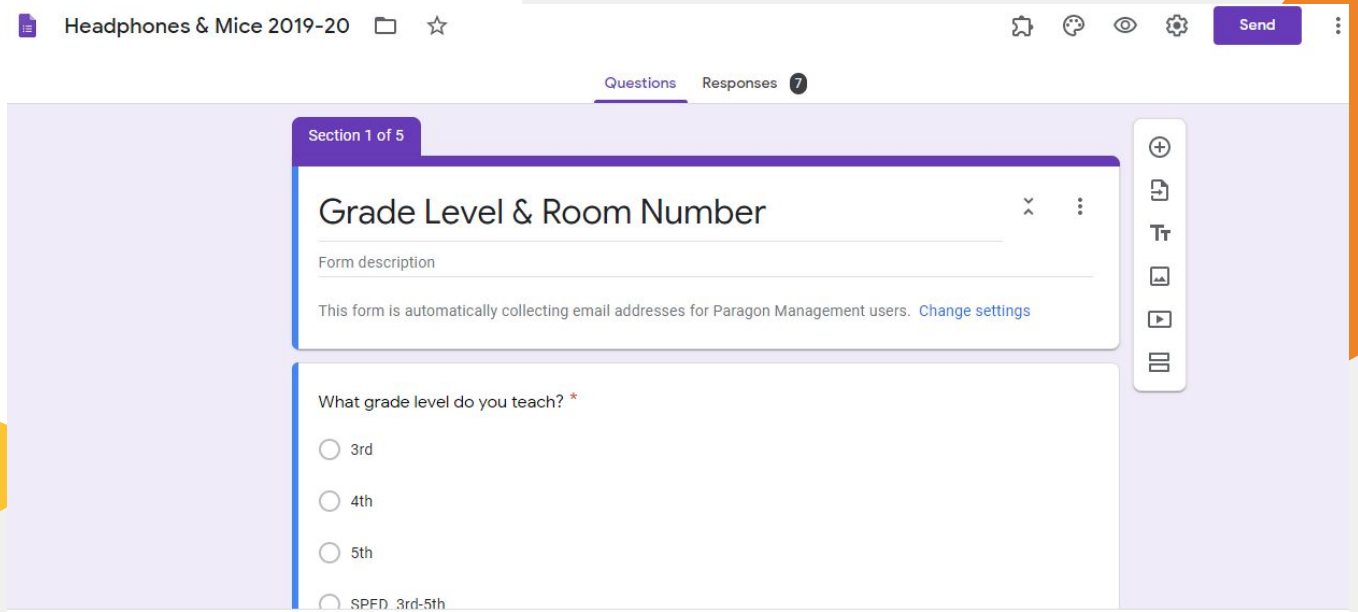
3rd: Log into AzM2 and play with sample test features

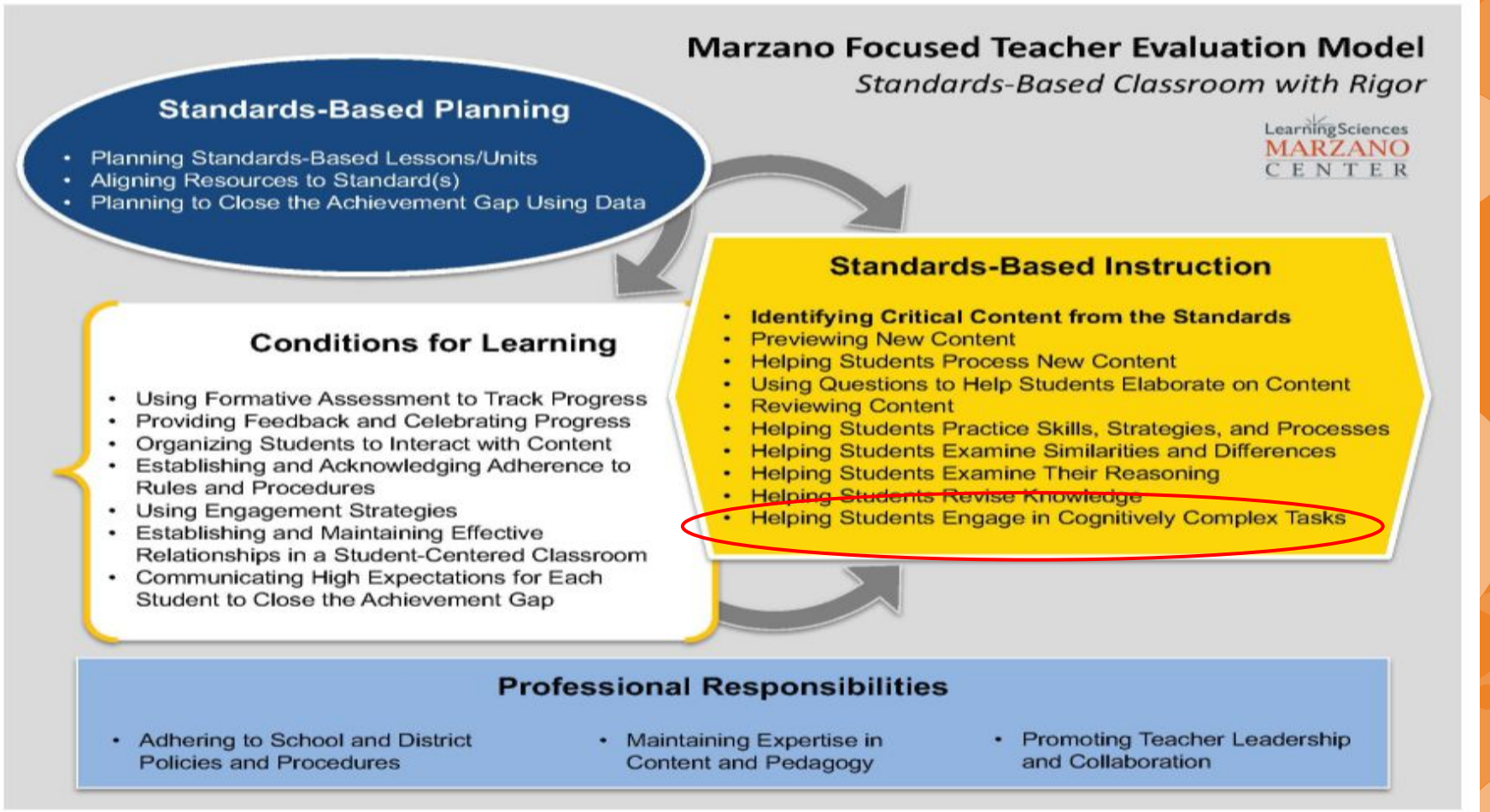
4th: View kindness videos on mrseatonclass.weebly.com

5th: Log into AzM2 and play with sample test features

3rd-5th Business

Please fill out Technology Headphones & Mice Form (if you have not already)




Marzano Focused Teacher Evaluation Model
Standards-Based Classroom with Rigor
Learning Sciences MARZANO CENTER
Standards-Based Planning
• Planning Standards-Based Lessons/Units
• Aligning Resources to Standard(s)
• Planning to Close the Achievement Gap Using Data
Standards-Based Instruction
• Identifying Critical Content from the Standards
• Previewing New Content
• Helping Students Process New Content
• Using Questions to Help Students Elaborate on Content
• Reviewing Content
• Helping Students Practice Skills, Strategies, and Processes
• Helping Students Examine Similarities and Differences
• Helping Students Examine Their Reasoning
• Helping Students Revise Knowledge
• Helping Students Engage in Cognitively Complex Tasks
Conditions for Learning
• Using Formative Assessment to Track Progress
• Providing Feedback and Celebrating Progress
• Organizing Students to Interact with Content
• Establishing and Acknowledging Adherence to Rules and Procedures
• Using Engagement Strategies
• Establishing and Maintaining Effective Relationships in a Student-Centered Classroom
• Communicating High Expectations for Each Student to Close the Achievement Gap
Professional Responsibilities
• Adhering to School and District Policies and Procedures
• Maintaining Expertise in Content and Pedagogy
• Promoting Teacher Leadership and Collaboration

Learning Target

Teachers will develop understanding of Cognitively Complex Tasks (CCT) by:

-review inventing CCT using PHES teacher examples
-examine and develop problem solving and student-designed cognitively complex tasks

Helping Students Engage in Cognitively Complex Tasks
Focus Statement: Teacher coaches and supports students in complex tasks that require experimenting with the use of their knowledge by generating and testing a proposition, a theory, and/or a hypothesis.
Desired Effect: Evidence (formative data) demonstrates students prove or disprove the proposition, theory, or hypothesis.

CCT: Inventing

Name: Amitiel

I think my graph will show my data because tally mark chart because so i can as they ... they tark colr

Hypothesis

- [ ] Title
- [ ] Labels
- [x] Key
- [x] Ask and answer: What has the most?

What has the least? Black

Did you have to edit your graph? yes/no

What did you have to change? purple

I learned that purple is a good colors.

Favorite colors	Tallies
blue	||||| 5
purple	|||||	6
black		1

Inventing

DE: Students prove or disprove propositions, theory, or hypothesis

Students create and test a prototype (trial product, advertisement, painting, new game for example) to meet criteria

Planning Template

- ★ Identify Learning Target
- ★ Determine goal (typically begins with create)
- ★ Develop Criteria
- ★ Provide Prompt
- ★ Students generate proposition or hypothesis
- ★ Brainstorm Ideas + Build prototype
- ★ Evaluate the prototype using criteria
- ★ Conclusion
  - explain how prototype achieved goal
  - reflect on the design

Evaluate Using Criteria

Name: Elijah

I think my graph will show my data because Bar graph because it is going to organize my data cooly!

- [x] Title
- [x] Labels
- [x] Key
- [x] Ask and answer: What has the most? Water

What has the least? Melk

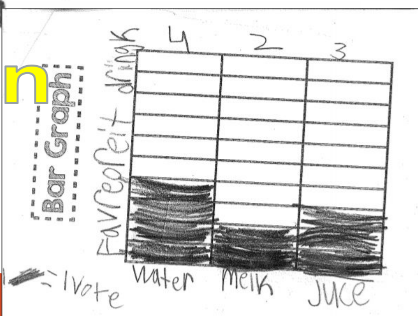
Criteria

Did you have to edit your graph? yes/no

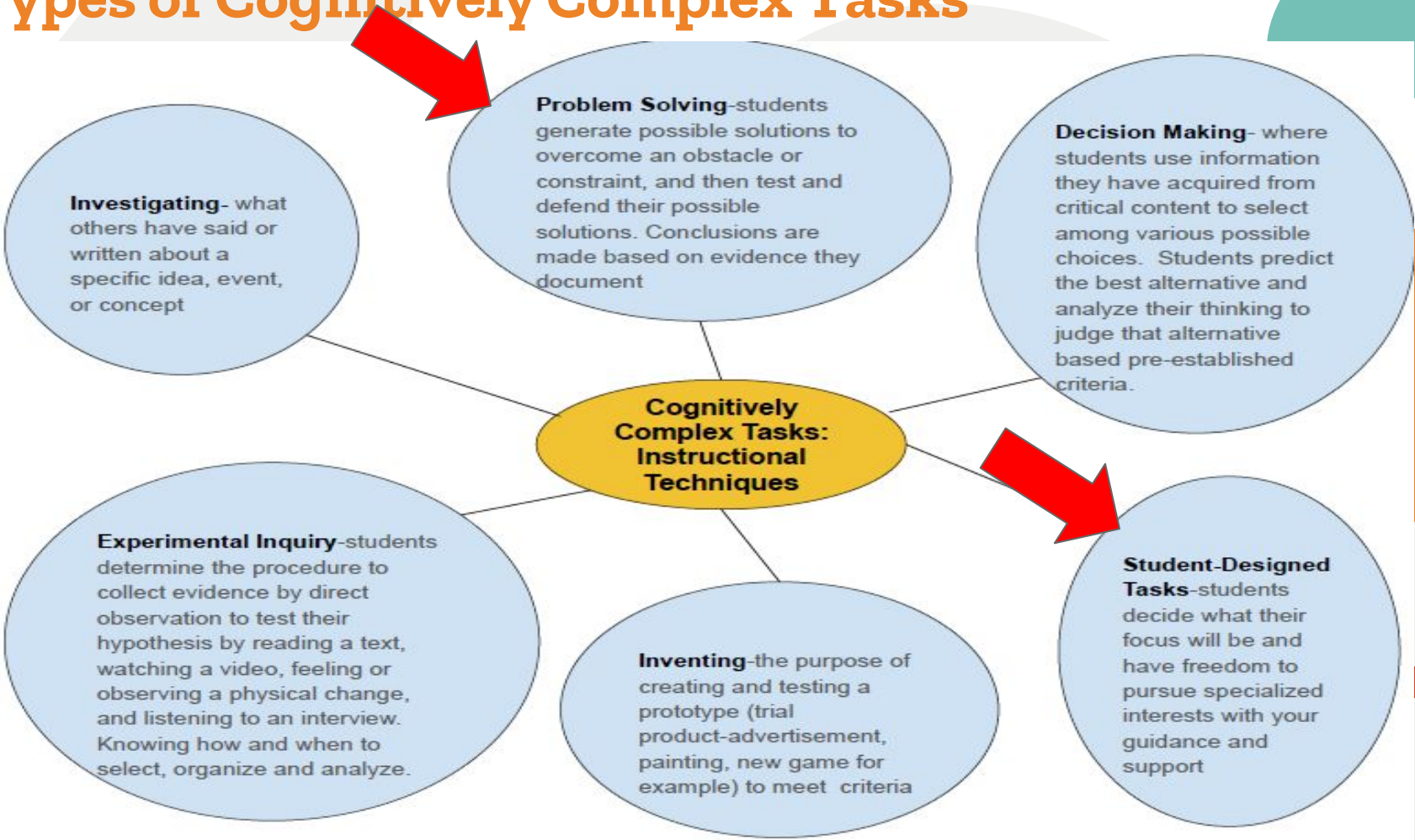
What did you have to change? nuthing

I learned that water is the most popularest in thes class.

Conclusion



Types of Cognitively Complex Tasks



Problem Solving

*Learning target

*Determine a goal

*Identify an obstacle

*Provide a prompt

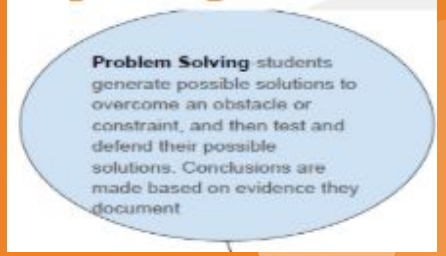
*Predict (hypothesize) possible solutions for solving the problem/possible obstacles that must be overcome

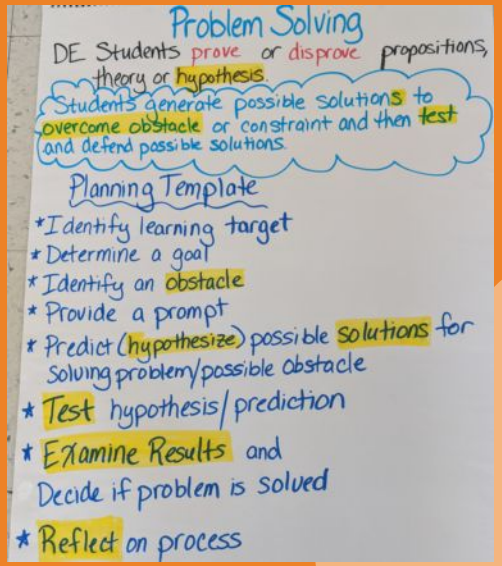
*Test the hypothesis/prediction

*Examine the results

*Decide if the problem is solved

*Reflect on the process

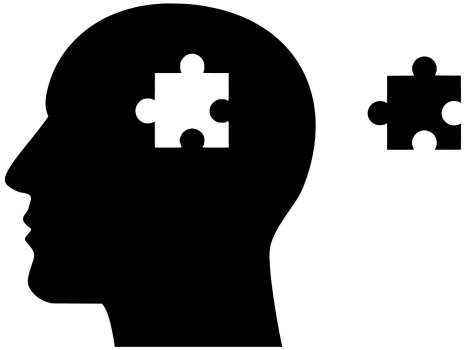




Helping Students Engage in Cognitively Complex Tasks
Focus Statement: Teacher coaches and supports students in complex tasks that require experimenting with the use of their knowledge by generating and testing a proposition, a theory, and/or a hypothesis.
Desired Effect: Evidence (formative data) demonstrates students prove or disprove the proposition, theory, or hypothesis.

Problem Solving Cognitively Complex Task

Learning target	The learning target for this lesson is _____.
Determine a goal	You are in charge of setting up a classroom with 20 places for people to sit. You can use any number of tables and any combination of 3 kinds of tables. You need exactly 20 places. *A hexagon-shaped table has 6 places. *A rhombus-shaped table has 4 places. *A square-shaped table has 4 places. How would you set up your tables so that 20 people have a place to sit? Show how many people can sit at each of the tables and how you know there are places for 20 people.
Identify an obstacle	Without going over, you need exactly 20 places for people to sit.
Provide a prompt	How would you set up your tables so that 20 people have a place to sit?
Predict (hypothesize) possible solutions for solving the problem/possible obstacles that must be overcome	Students decide what kind of tables and how many people can sit at each table
Test the hypothesis/prediction	Students test ideas and note what they find
Examine the results	Students examine/discuss their findings to see if it matches what they initially thought
Decide if the problem is solved	Students state if they were able to seat exactly 20 people at table arrangements

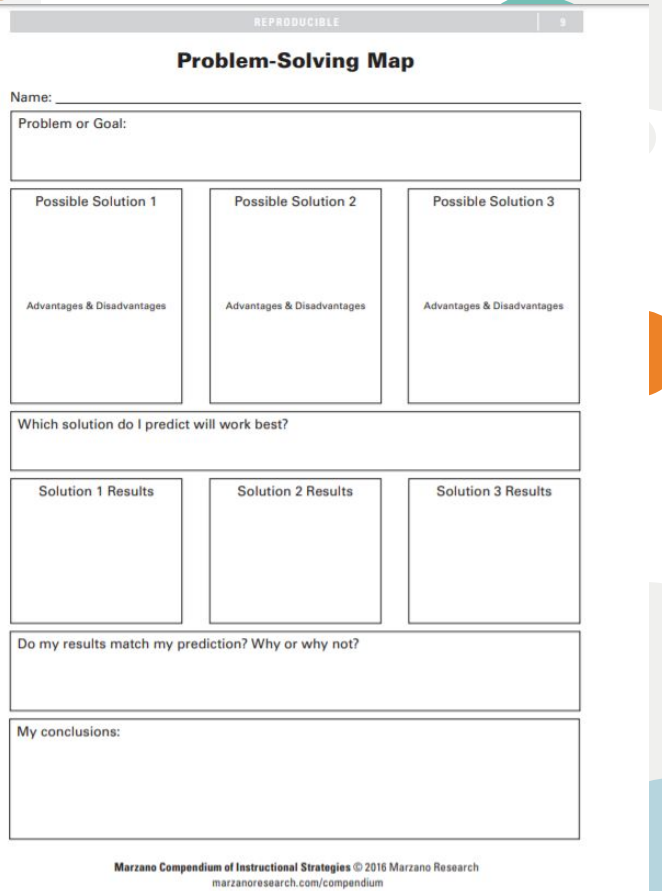


Reflect on the process	*Students state what they would do differently next time. *Revise their initial prediction *Use evidence from the experiment to cite evidence

CCT: Problem Solving

Task:

You are in charge of setting up a classroom with 20 places for people to sit. You can use any number of tables and any combination of 3 kinds of tables. A hexagon-shaped table has 6 places. A rhombus-shaped table has 4 places. A square-shaped table has 4 places. How would you set up your tables so that 20 people have a place to sit? Show how many people can sit at each of the tables and how you know there are places for 20 people. You may use pattern blocks. Pretend the paper is a miniature room. You need exactly 20 places.



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Problem-Solving Map

Name: _____

Problem or Goal:

Possible Solution 1	Possible Solution 2	Possible Solution 3
Advantages & Disadvantages	Advantages & Disadvantages	Advantages & Disadvantages

Which solution do I predict will work best?

Solution 1 Results	Solution 2 Results	Solution 3 Results

Do my results match my prediction? Why or why not?

My conclusions:

CCT: Problem Solving

Possible Solutions

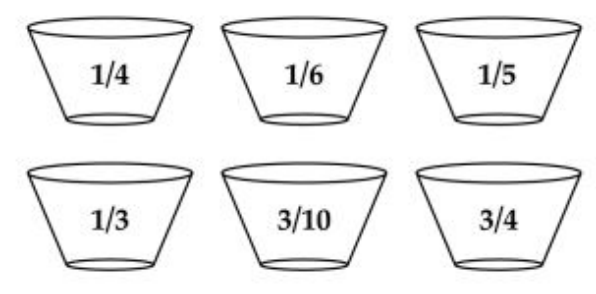
h = hexagon r = rhombus s = square

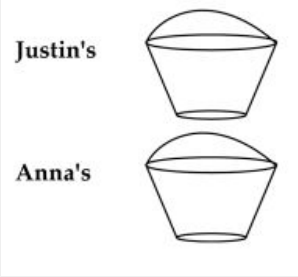
hhrr
hhss
hhsr
rrrrr
rrrrs
rrrss
rrsss
rssss
sssss

CCT: Problem Solving

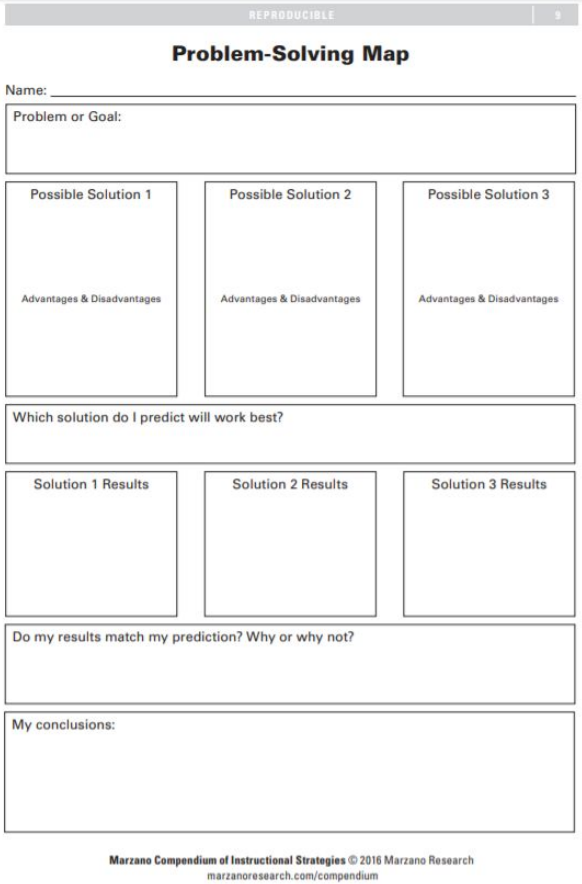
Task:

Justin and Anna were camping with their family. They joined their dad at the camp water pump where he had partially filled 6 containers. The containers had no handles. As he filled each one he labeled the fractional amount to which each container was filled. The amounts are shown





Justin and Anna each had a container that was the same size as the ones their dad filled, but theirs had handles. Their task was to pour the water from the 6 containers into their 2 containers so they could easily carry the water back to camp. Which containers should Justin and Anna pour into each of their containers so they can transport the water in one trip?



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Problem-Solving Map

Name: _____

Problem or Goal:

Possible Solution 1	Possible Solution 2	Possible Solution 3
Advantages & Disadvantages	Advantages & Disadvantages	Advantages & Disadvantages

Which solution do I predict will work best?

Solution 1 Results	Solution 2 Results	Solution 3 Results

Do my results match my prediction? Why or why not?

My conclusions:

CCT: Problem Solving

Task:

Justin c
their d
filled 6
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Justin ar
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the wate
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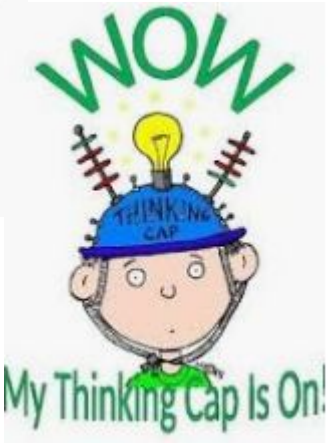
Helpful Hint: Look at Solutions

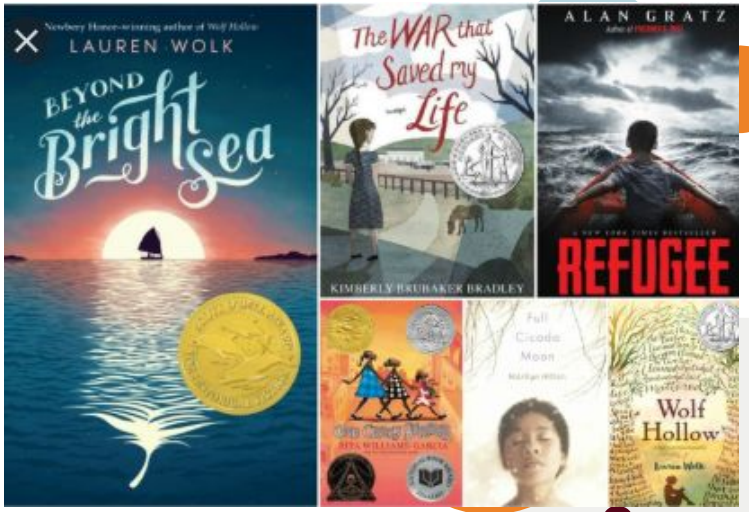
Students need to be able to test more than one solution to overcome in problem solving

Problem Solving Resources

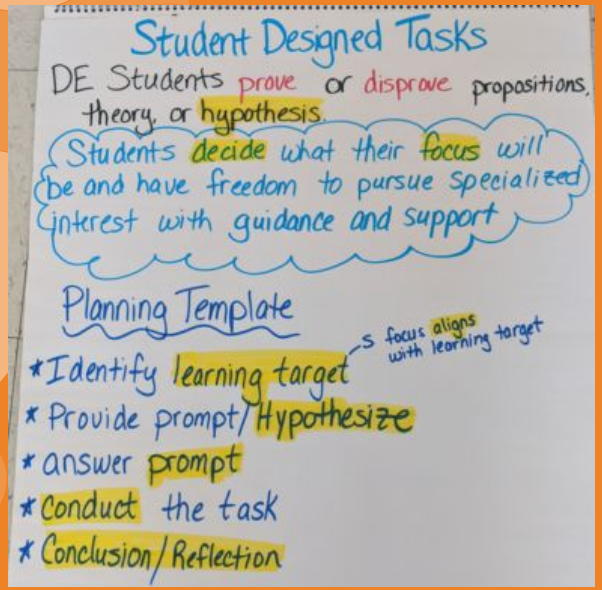
Math in Focus®
Singapore Math®
by Marshall Cavendish®



*Math Exemplars for Level 1, Level 2, Level 3



Student-Designed Task



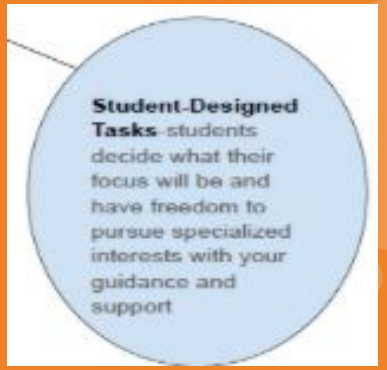
*Identify Learning Target

*Provide Prompt/Hypothesize

*Answer prompt

*Conduct the task

*Conclusion/Reflection



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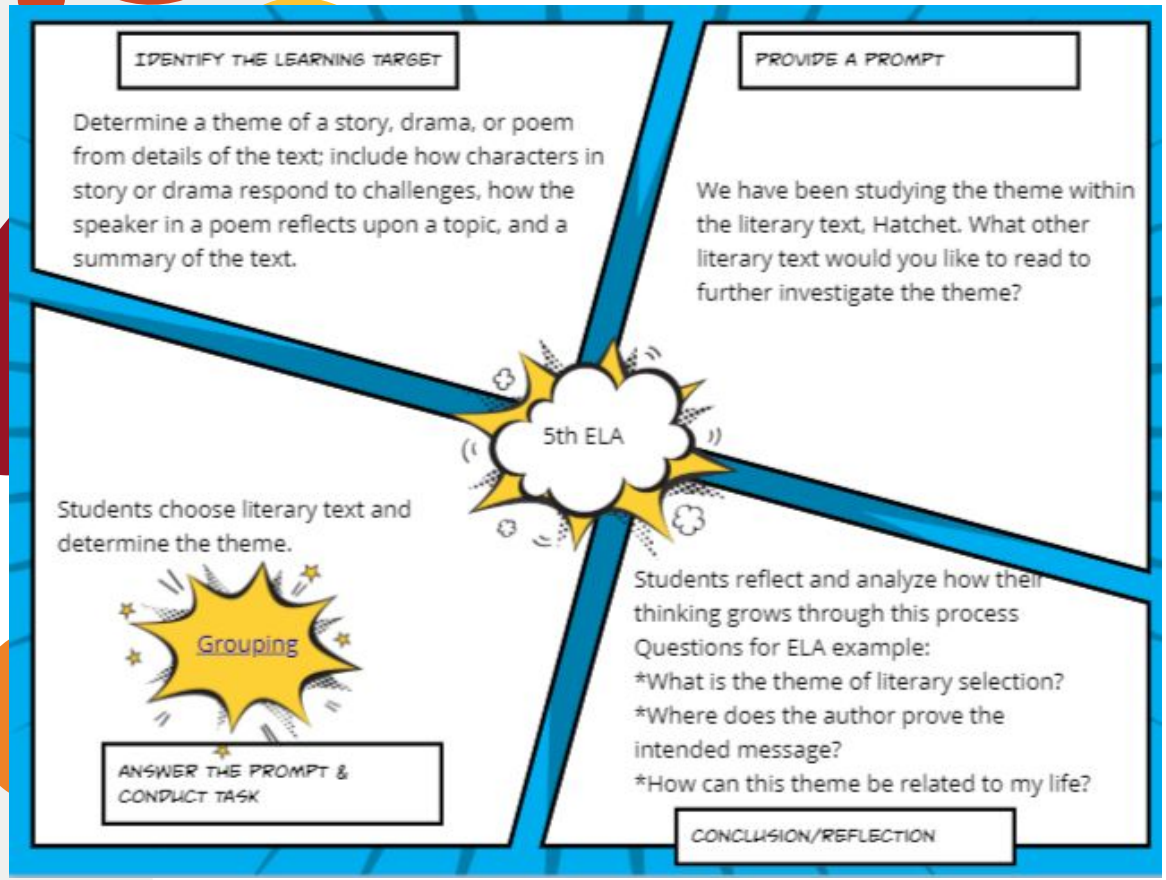
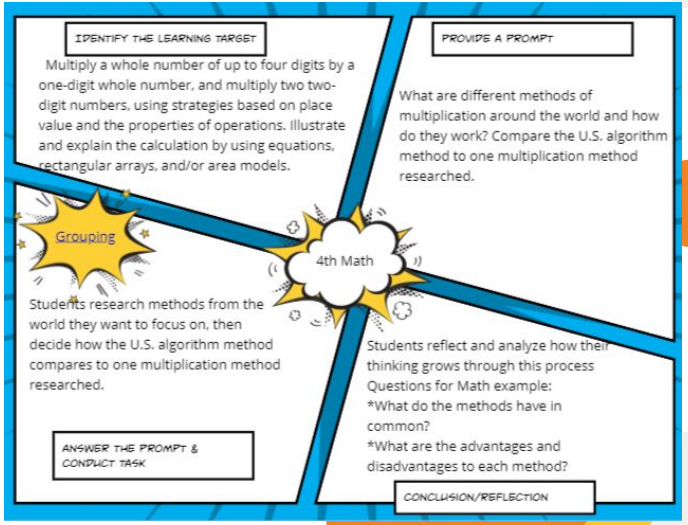
CCT: Student-Designed Task Examples





Develop and Apply

Brainstorm ideas on how to incorporated
*Problem Solving CCT
*Student-Designed CCT

Ticket Out

*Why would you want to incorporate Problem Solving and/or Student-Designed Cognitively Complex Tasks within instruction?
*Which technique applies to your classroom?