Analysis/Solution Mindset (Problem Solver)

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Academic Learning Goals:
Traits that represent what learners should know or be able to do as a result of the lesson. These correlate to the 21st Century Skill Competencies/Attributes/Traits document hosted online at [www.newworldofwork.org](http://www.newworldofwork.org)

Trait 1: Considers different points of view. Tries to understand why information is presented the way it is.
Trait 2: Sees problems and needs in society, the community, or workplace. Looks at the bigger picture when finding a way to solve a problem.
Trait 3: Sees themes or patterns in data. Connects information from different subject areas. Uses critical thinking skills.
Trait 4: Takes time to think about different ways of solving problems. Tests out ideas to find the one that is best.

Skills Crosswalk:
State/National standards that correlate to this 21st Century Skill

Advance CTE: [careertech.org/career-ready-practices](http://careertech.org/career-ready-practices)
4. Communicate clearly and effectively and with reason.
5. Consider the environmental, social and economic impacts of decisions.
7. Employ valid and reliable research strategies.
8. Utilize critical thinking to make sense of problems and persevere in solving them.

Advancement Via Individual Determination’s (AVID) Alignment with Collaborative for Academic, Social, and Emotional Learning’s (CASEL) Five Key Competencies: [www.avid.org/social-emotional-learning](http://www.avid.org/social-emotional-learning)
2. Self Management
4. Relationship Skills

Linked Learning Alliance Silver and Gold Certification Requirement: [certification.linkedlearning.org/certification-requirements](http://certification.linkedlearning.org/certification-requirements)
• Culminating Experience • Collaborative Cohorts
• Interdisciplinary Projects • Collecting Data
New World of Work Lesson Videos:

Entire NWoW High School Video Series: [www.youtube.com/playlist?list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2](http://www.youtube.com/playlist?list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2)

Analysis/Solution Mindset Video Lessons (broken down by trait)

1. Analysis/Solution Mindset Intro: [www.youtube.com/watch?v=SaO-v9Dkpeg&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=1](http://www.youtube.com/watch?v=SaO-v9Dkpeg&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=1)
2. Analysis/Solution Mindset Part 1: Understanding Different Points of View [www.youtube.com/watch?v=44eEJm7uSOq&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=2](http://www.youtube.com/watch?v=44eEJm7uSOq&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=2)
3. Analysis/Solution Mindset Part 2: Understanding the Context of Problems [https://www.youtube.com/watch?v=fnmT13jAMrM&index=3&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=3](https://www.youtube.com/watch?v=fnmT13jAMrM&index=3&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=3)
4. Analysis/Solution Mindset Part 3: Connecting Information with Critical Thinking [www.youtube.com/watch?v=MmhTymtQ-je&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=4](http://www.youtube.com/watch?v=MmhTymtQ-je&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=4)
5. Analysis/Solution Mindset Part 4: Thinking About Multiple Solutions [www.youtube.com/watch?v=0S27VhpUZLc&index=5&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=5](http://www.youtube.com/watch?v=0S27VhpUZLc&index=5&list=PLWCjcrQpQiFZ8qUs1BQmXnHizLFxXemp2&index=5)

Supplemental Videos

- Design Thinking in 90 Seconds Video (Trait 1) [www.youtube.com/watch?v=vQytKCT563I](http://www.youtube.com/watch?v=vQytKCT563I)
- The 5 Whys Problem Solving Method Video (Trait 2) [www.youtube.com/watch?v=B-M3YlA2KDg](http://www.youtube.com/watch?v=B-M3YlA2KDg)
Note for Instructors:

In the pages that follow, you will find lesson plans for each of the four traits that comprise this skill. Time estimates are indicated in the lesson plans along with a list of reproducible steps for the lesson, which are correlated to the PowerPoint (PPT) slides you have been provided with. Notes from the lesson plan are included in the notes section of the PPT slides.

PPT slides have been kept basic to follow open source copyright guidelines. As an instructor, you can add images or content when delivering the presentations to students. However, you need to follow the 80:20 rule, which means no more than 20 percent of the instruction prescribed for each trait (through the lesson plans) can be changed. This ensures the fidelity of the NWoW content while allowing you to contextualize the lesson for your particular students/learners.

Other Important Notes:

1. Every skill has four traits: these traits can be taught individually or as a series, based on the time you have available with your students/learners.

2. Each trait can be taught in a 30–60 minute session depending on the lesson content you include.

3. Lesson plans include the relevant New World of Work High School & Opportunity Youth Videos. These videos have activity prompts that correspond with the trait. You can use these prompts or develop your own activity prompts.

4. There are additional activities listed in the lesson plan to facilitate further exploration of each trait. You may extend your lesson for a trait by adding in the additional activity.

5. After completing the four lessons for a skill, students can visit www.newworldofwork.org/badges to earn their Learner Digital Badge in that skill.
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**Lesson Plan: Trait 1**

Considers different points of view. Tries to understand why information is presented the way it is.

**Total Lesson Time: 30–60 minutes**

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<th>Activity [with PPT Slides]</th>
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| 5 mins   | Intro Exercise [Slides 2–3]| To assist students, break the term down. Say: Analysis (pause) Solution (pause) Mindset (pause). Sometimes in order to understand something, it helps to understand the parts—in fact, doing so is a type of analysis!

Ask students to work independently or chat with a partner and write down in pictures, symbols, or words what they think Analysis/Solution Mindset means. Then, go over the 4 traits. |
<p>| 2 mins   | Intro Video [Slide 4]      | Watch: <a href="#">NWoW Analysis/Solution Mindset Intro Video</a>                                                                                                                                                         |
| 4 mins   | Overview and Video: First Trait [Slides 5–6] | Watch: <a href="#">NWoW Analysis/Solution Mindset Part 1: Understanding Different Points of View Video</a>*&lt;br&gt;*You can stop the video at the Time to Practice screen image if you are not using the included activity prompt from the video and wish to use your own activity. |
| 15–20 mins | Different Points of View [Slide 7] | <strong>Note:</strong> This activity is included in the video prompt. If you choose your own activity, stop the video when you see the Time to Practice image on screen, and swap out Slide 7 for one of your own.&lt;br&gt;&lt;br&gt;Have students think of a time when information looked differently to them than it looked to someone else. Have students partner up to exchange stories. They should take a few minutes to discuss how each perspective informed the way that person understood the situation, and what their goals were. |</p>
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<tr>
<td></td>
<td>Individual Reflection</td>
<td>Based on their discussion with their partners, have students write a journal entry exploring what they can learn from other people's perspectives. <strong>Note:</strong> Journal entries can be completed online or offline and then shared for instructor review.</td>
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<td></td>
<td>[Slide 7]</td>
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<tr>
<td>20–30 mins</td>
<td>Design Thinking Activity</td>
<td><strong>Note:</strong> <strong>This is an additional activity included for this trait to allow students further practice/exploration.</strong> Watch <a href="#">Design Thinking in 90 Seconds Video</a>. Then, ask students to get into small groups and imagine they are a team of designers tasked with creating a better high school experience. Ask students to detail the first 3 steps they would take to design this experience and to be specific (for instance, if they plan on interviewing students: what questions would they ask?).</td>
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<td></td>
<td>[Slide 8]</td>
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</table>
|            | Group Share Out           | Have each group share their steps. As a class, discuss:  
  • What did the plans have in common?  
  • What was unique?  
  • In creating a better high school experience, why is considering different points of view helpful?  
  • What might you learn? |
|            | [Slide 9]                 |                                                                                                                                                                                                                  |
Lesson Plan: Trait 2

Sees problems and needs in society, the community, or workplace. Looks at the bigger picture when finding a way to solve a problem.

Total Lesson Time: 30–60 minutes

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<tr>
<td>3–5 mins</td>
<td>Overview and Warm-Up: Investigation [Slides 10–11]</td>
<td><em>This warm-up is required as it is referenced in future activities for this skill.</em> Many communities across the country have to solve similar problems. Ask students to take a look at some local news sources to determine what types of problems your community has been facing in the past 6 months. Have them make a list of the ones they find. Use the local section of your newspaper online, or in print if possible. <strong>Note:</strong> This list will be used in activities for Trait 2 and Trait 3, so have it posted up in class.</td>
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<td>6 mins</td>
<td>Video: Second Trait [Slide 12]</td>
<td>Watch: <a href="#">NWoW Analysis/Solution Mindset Part 2: Understanding the Context of Problems Video</a>* You can stop the video at the Time to Practice screen image if you are not using the included activity prompt from the video and wish to use your own activity.</td>
</tr>
<tr>
<td>20 mins</td>
<td>Make a List [Slide 13]</td>
<td><strong>Note:</strong> This activity is included in the video prompt. If you choose your own activity, stop the video when you see the Time to Practice image on screen, and swap out Slide 13 for one of your own. Ask students to consider the question, “Why don’t people recycle more?” or “What factors keep people from having healthy food?” Have them make a list of the larger issues that could be at play.</td>
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<tr>
<td></td>
<td>Group Sharing [Slide 13]</td>
<td>Students should share their ideas with the group. Discuss how each of those issues could be addressed in a way that could result in an increase in recycling or healthier food options.</td>
</tr>
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</table>
### Root Cause Analysis

**Activity**
- 20–30 mins
- **Root Cause Analysis**
  - [with PPT Slides]

**Description/Notes**

Note: This is an additional activity included for this trait to allow students further practice/exploration.

Explain to students that one method for understanding the context of a problem is to do a “root cause analysis” to figure out the true, deeper cause of a problem. A root cause analysis allows us to see the bigger picture by peeling back the layers of “why” to uncover what major forces are at play in causing the issue you observe. As Mind Tools explains, a root cause analysis allows you to “Break down a problem into small, detailed parts to better understand the big picture.”

You can read more about root cause analysis here:

- [www.mindtools.com/pages/article/newTMC_80.htm](www.mindtools.com/pages/article/newTMC_80.htm)

One tool for identifying a root cause is “the 5 Whys” (although sometimes it only takes 3, and sometimes it takes more!).

Have students watch The 5 Whys Problem Solving Method Video. Explain this is an example of how they might use “the 5 Whys” in a work setting.

### Root Cause Analysis: Practice

**Activity**
- 20–30 mins
- **Root Cause Analysis: Practice**
  - [Slide 15]

**Description/Notes**

Now students will practice a root cause analysis using “the 5 Whys” technique by revisiting the community problems they listed from the Warm-Up: Investigation (Slide 11). Have students get into small groups and pick one of the problems your community is facing. They should record their “why” questions and answers until they get to what they feel is the root cause.

Then, as a class, share out from each group and discuss how understanding the root cause can help craft better solutions.
# Lesson Plan: Trait 3

Sees themes or patterns in data. Connects information from different subject areas. Uses critical thinking skills.

**Total Lesson Time: 30–60 minutes**

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<tr>
<td>5 mins</td>
<td>Overview and Warm-Up: Reflection [Slides 16–17]</td>
<td>Ask students the following questions to prompt a journal entry, which can be completed online or offline and then shared for instructor review: Have you ever been able to connect information you learn in one class to something in another? Or, have you had an experience where you were able to use something you learned in school outside of class? Think about a time you made connections between two seemingly unrelated things and write about it in a journal entry.</td>
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</table>
| 5 mins | Video: Third Trait [Slide 18] | Watch: NWOw Analysis/Solution Mindset Part 3: Connecting Information with Critical Thinking Video*  
*You can stop the video at the Time to Practice screen image if you are not using the included activity prompt from the video and wish to use your own activity. |
| 20 mins | Seeing Relationships [Slide 19] | **Note:** This activity is included in the video prompt. If you choose your own activity, stop the video when you see the Time to Practice image on screen, and swap out Slide 19 for one of your own.  
Ask students: Can you think of a time that you’ve been able to make a connection like Linnea? It should be a situation where you were able to see the relationship between two different sets of information.  
Ask students to write down some notes. |
|       | Partner Sharing [Slide 19] | Students can then partner up with someone and exchange stories. |
### Time | Activity [with PPT Slides] | Description/Notes
--- | --- | ---
20–30 mins | **Research a Solution** [Slide 20] | **Note:** *This is an additional activity included for this trait to allow students further practice/exploration.*

Ask students to recall the list of problems your community is facing, and the root causes they came up with if they did the extra activity while exploring Trait 2 of Analysis/Solution Mindset. Now, with a partner, they will do some research to find out how other communities have solved this or a similar problem.

Ask them to look for data and information that may have been collected that helped lead to the solution(s) chosen to deal with the problem.

Create a shared doc (your school may use Google, Canvas, or Moodle)* with hyperlinks to stories and 2-5 sentence summaries of possible action plans your community could take. Each team should highlight their top recommended solution.

*If computers are unavailable, you can also do this using smartphones; collaboratively with your laptop; or using a whiteboard, poster board, sticky paper, etc.

| **Solution Presentation** [Slide 20] | Have students create a written proposal, slide presentation, or short skit about why their recommended solution is the best alternative, and present to the class. |
Lesson Plan: Trait 4
Takes time to think about different ways of solving problems. Tests out ideas to find the one that is best.

Total Lesson Time: 30–60 minutes

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| 5 mins | Overview and Finding the Best Solution [Slides 21–22] | Go over the slide examples:
There are several ways to test out the best way to do something. Engineers will make a “proof” of a structure or product using cardboard or other inexpensive material to test it out. Computer programmers do things in small increments called sprints, and make sure their customers are happy with how things are coming along after each phase. Design thinkers do deep empathy work then prototype and test their idea. Some people create something all the way through, then continue to make small changes in order to get it just right.
Class Discussion:
• Which method seems the best to you?
• Why?
• What are some other methods? |
| 5 mins | Video: Fourth Trait [Slide 23] | Watch: NWoW Analysis/Solution Mindset Part 4: Thinking About Multiple Solutions Video*  
*You can stop the video at the Time to Practice screen image if you are not using the included activity prompt from the video and wish to use your own activity. |
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</table>
| 20–30 mins | Brainstorm Solutions [Slide 24] | **Note:** This activity is included in the video prompt. If you choose your own activity, stop the video when you see the Time to Practice image on screen, and swap out Slide 24 for one of your own.  
Have students get into groups of 3–4. Ask them to work together to pick out a problem facing your school or community. (Ask them to choose a school issue if you have already fully explored community issues in previous exercises.)  
After that, they should brainstorm possible solutions. When they have at least five possible tactics, have them work together to pick the three possibilities that are the most likely to be effective. |
|            | Group Discussion [Slide 24] | Students can switch groups to discuss their problems and solutions. If there’s still time, have the new groups choose a different problem, and go again!                                                                     |
| 20–30 mins | Create a Structure [Slide 25] | **Note:** This is an additional activity included for this trait to allow students further practice/exploration.                                                                                                          20–30 mins Brainstorm Solutions [Slide 24] | Note:** This activity is included in the video prompt. If you choose your own activity, stop the video when you see the Time to Practice image on screen, and swap out Slide 24 for one of your own.  
Have students get into groups of 3–4. Ask them to work together to pick out a problem facing your school or community. (Ask them to choose a school issue if you have already fully explored community issues in previous exercises.)  
After that, they should brainstorm possible solutions. When they have at least five possible tactics, have them work together to pick the three possibilities that are the most likely to be effective. |
|            | Group Discussion [Slide 25] | Have students share what their method was, given their building materials. Ask them to explain what HYPOTHESES they tested and how.                                                                                       |
ONGOING PROJECT: Spotlight on Service

The purpose of the Spotlight on Service is to provide students with an experiential learning opportunity to relate the skill of Analysis/Solution Mindset to the larger concept of service with a focus on school, community, and/or larger social engagement. The Spotlight on Service could also be used to meet a community service graduation requirement.

The crowdfunding activity provides students the opportunity to analyze where a problem or challenge exists within their own school or community and devise a solution to address that challenge via a social media campaign project. If you are unfamiliar with crowdfunding, or want to learn more, check out this great summary from Fundable: www.fundable.com/learn/resources/guides/crowdfunding/what-is-crowdfunding

Kickstarter/GoFundMe/Other Crowdfunding Activity

1. Based on their research of current issues their school or community is facing, ask students to determine which issue your class (or small group) would like to support.

2. Have students do some research to identify an organization or current crowdfunding project that helps people with this problem. Research why and how it was started. Have them start by checking out:
   a. Kickstarter
   b. GoFundMe
   c. DonorsChoose.org

3. Focusing on the issue identified in #1, students should spend two weeks (recommended) either:
   a. Publicizing an existing crowdfunding campaign in your community to raise awareness and support for the cause. Please note: Be sure to discuss your intentions and the role of your students with the current organizers.
   b. Creating their own crowdfunding campaign to raise awareness and support for the cause they have identified. Please note: If you choose this option, different crowdfunding platforms have different rules and regulations for use that you should familiarize yourself with. These are easily accessible on their websites or if you Google the name of the platform + rules/regulations.

4. Afterward, have students reflect on the role Analysis/Solution Mindset played in planning and executing this activity. Did any of the four traits stand out as particularly important? Why?
CLASS CLOSURE: Badging Activity

Digital badges to showcase student skills online.

Once students have gone through all four traits of ANALYSIS/SOLUTION MINDSET, have them navigate to the “Learner Badge” section of the New World of Work website: www.newworldofwork.org/badges. Students will click on the “Analysis/Solution Mindset” badge icon to launch a webpage that contains an overview of the trait and instructions for the badging assessment. Or, students can go directly to the badging assessment here: badges.newworldofwork.org/quiz/analysissolution-mindset

As they take the assessment, students have the option to watch the videos again as review or go directly to the multiple-choice questions. A passing score on the multiple-choice questions will allow students to earn the badge.

If students pass, they will receive an email from Badgr that details how they can claim their badge to share and post online for all the world (and potential employers) to see! If a student does not pass, they will be prompted to retry.

If you haven't already discussed digital badging as a class, share with students what a digital badge is and how it can be useful to them:

1. A digital badge is an online representation of accomplishment such as the completion of a project or training, mastery of a skill, or accumulation of experience.
2. They are issued by schools, universities, and community and professional organizations.
3. The earner can openly display their digital badges across social media sites, on their LinkedIn profile or as part of an online portfolio, blog, and/or résumé.
4. The badge acts as a bridge from education and life experiences into the world of work where employers can view the badge as a verification, or e-credential, indicating desired qualities and skills.

For more information on digital badges, students can read this article on Medium!