WELCOME!

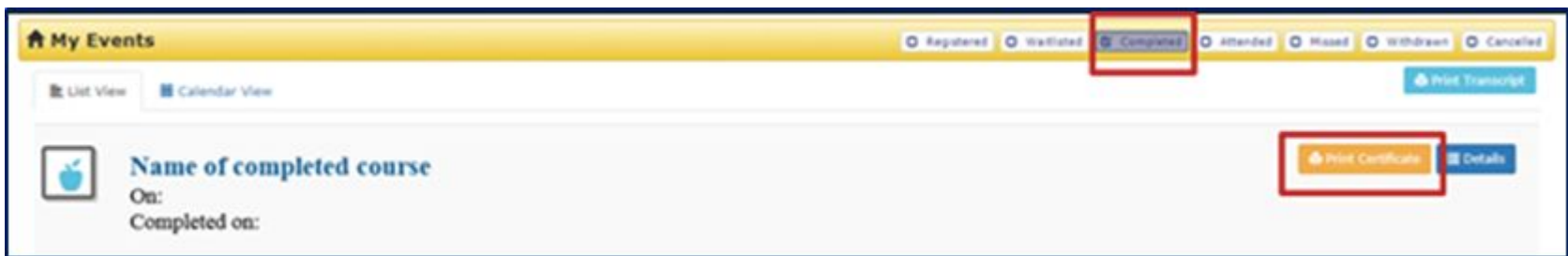## Please review this information while we wait for all to join!

Attendance, Resources & PD Clock Hours

- **Please stay on the whole time to receive credit**
- **<u>YOU</u> print your certificate through ADE Connect(see image)- <mark>please wait 24-48 hours of webinar before printing certificates</mark>**

- **Please make sure your name (in Zoom) matches the name used to register in ADE system**
- **AFTER WEBINAR: Survey & follow-up email from ADE**

What Elementary Science Educators Need to Know About Performance Tasks

Sara Torres Arizona Science Teachers Association

astaexecdir@azsta.org

Meg Gebert Arizona Science Teachers Association

2019_president@azsta.org

Sarah Sleasman Arizona Dept of Education

Sarah.Sleasman@azed.gov

Rebecca Garelli Arizona Dept of Education

Rebecca.Garelli@azed.gov

What Elementary Teachers Need to Know about Performance Tasks- Webinar Dashboard

Facilitators/Developers: ADE: Rebecca Garelli: Rebecca.Garelli@azed.gov I Sarah Sleasman: Sarah.Sleasman@azed.gov
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ADE Science Standards Page   I   ADE Science Resource Page   I   Arizona Science Teachers Association

1	**General Resources**	⊕ **Presentation PDF:** PDF of Slides ⊕ **ADE Assessment Website:** ADE Assessment Website
2	**Opening Video**	⊕ **Weather 101:** https://video.nationalgeographic.com/video/101-videos/weather-101-sci
3	**What is a Performance Task (PT)?**	⊕ **STEM Teaching Tool #29:** Steps to Designing 3-D Assessments
4	**Kentucky Created PT**	⊕ Kentucky CEA Performance Task **(ONLY pages 6-9)** ⊕ Weather All Around **MAKE A COPY**
5	**Kentucky CEA Performance Task (FULL TASK)**	⊕ **Full Copy of PT Weather All Around:** Full- Weather All Around
6	**Guide for Developing a PT & Rubric (graphic)**	⊕ **The Wonder of Science Assessment Design:** 　○ https://thewonderofscience.com/assessment-design

What, Why, How

Introduction and review of assessment to define what a performance task is by defining the characteristics of high-quality assessment.

Key takeaways that participants will learn:

- what a performance task is
- key components of a performance task
- how to evaluate a performance task

Performance Task (PT) Comfort Level

Where do you fall on this spectrum?

A   **B**   **C**   **D**   **E**

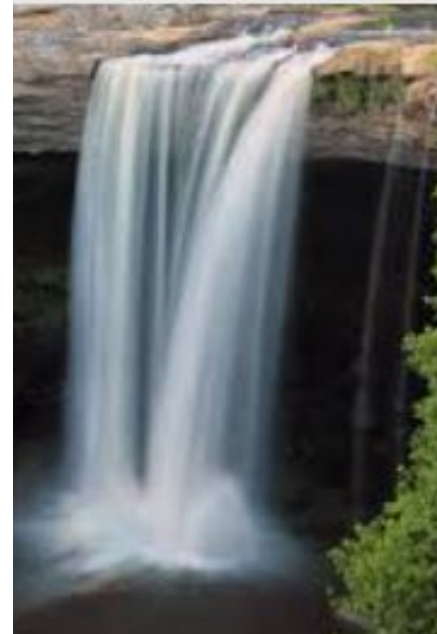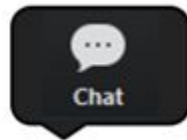**I know the Performance Tasks exist**   **I have used PTs with my students**   **I can confidently screen tasks and/or create my own**

Chat

Developing Assessments for 3-Dimensional Science Standards

What does three-dimensional assessment mean to you?

Alone Zone

Waterfall

Developing Assessments for 3-Dimensional Science Standards

"Assessment tasks have to be designed to provide evidence of students' ability to use **practices**, to apply their understanding of the **crosscutting concepts**, and draw on their understanding of specific **core ideas**, all in the context of addressing specific problems."

– *Pellegrino, Wilson, Koenig, Beatty,* Editors, *Developing Assessments for the Next Generation Science Standards National Academies Press (2014)*
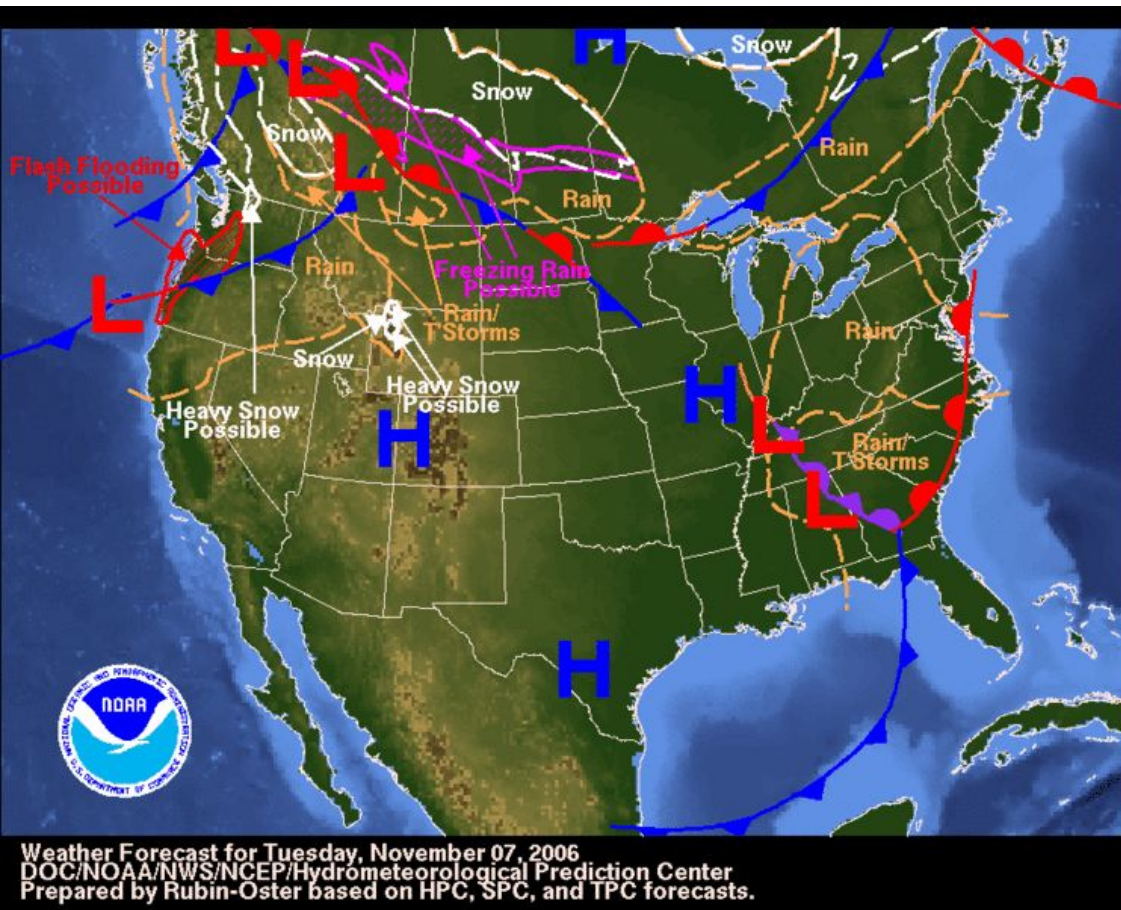
What is a Performance Task (PT)?

A **performance task** is any learning activity or assessment that asks students to perform to demonstrate their knowledge, understanding and proficiency. **Performance tasks** yield a tangible product and/or **performance** that serve as evidence of learning.

Task: A single, multi-component activity designed to elicit understanding of a standard/performance expectation (or part of one).

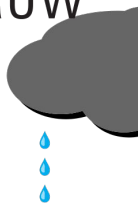STEM Teaching Tool #29- Steps to Designing 3-D Assessment

Setting the Stage

Weather Forecast for Tuesday, November 07, 2006
DOC/NOAA/NWS/NCEP/Hydrometeorological Prediction Center
Prepared by Rubin-Oster based on HPC, SPC, and TPC forecasts.

TODAY
62|37
morning fog,
partly cloudy

TOMORROW
58|41
rain showers,
cloudy

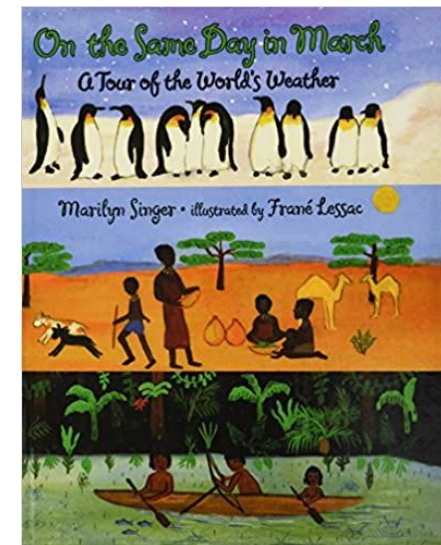On the Same Day in March
A Tour of the World's Weather
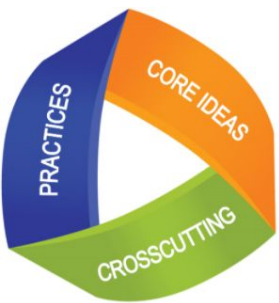Marilyn Singer • illustrated by Frané Lessac

https://images-na.ssl-images-amazon.com/images/I/5
1Q+S-SI6kL._SX390_BO1,204,203,200_.jpg

Kentucky Created PT

Take a few minutes to immerse yourself into the task, pages 6-9, **make a copy**. (#4 in Dashboard)

What do you notice/wonder about the PT?
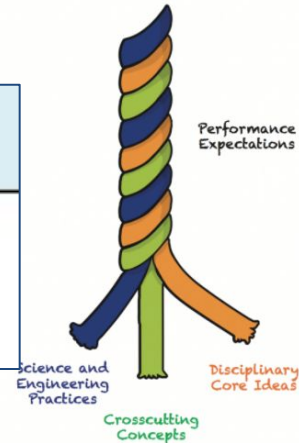How is this different/similar than traditional assessments?

Standards

4.E1U1.8

Collect, analyze, and interpret data to explain weather and climate patterns.

Performance Expectations

Science and Engineering Practices

Disciplinary Core Ideas

Crosscutting Concepts

a. Targeted Performance Expectation(s)

3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.] Science and Engineering Practice in the foreground – Analyzing and Interpreting Data
Cross Cutting Concept in the foreground – Patterns

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| | ⊕ ADE Assessment Website: ADE Assessment Website |

3-Dimensional Scavenger Hunt

- Identify & highlight the Crosscutting Concepts in the PT

- Identify & highlight the Science & Engineering Practices in the PT

- Identify & highlight the Core Ideas in the PT

(#4 in Dashboard)

Breakout Room Discussion
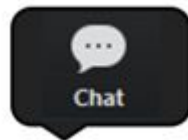
Facilitator - ensure everyone has a turn to share

Time Keeper - 8 minutes

Reporter - prepare summary for whole group chat

Discussion questions:

Did you find the 3-dimensions in the PT? Provide evidence of where you found the 3-dimensions.

Guide for Developing a Performance Task & Rubric

Step 1: Review Standard/Performance Expectation

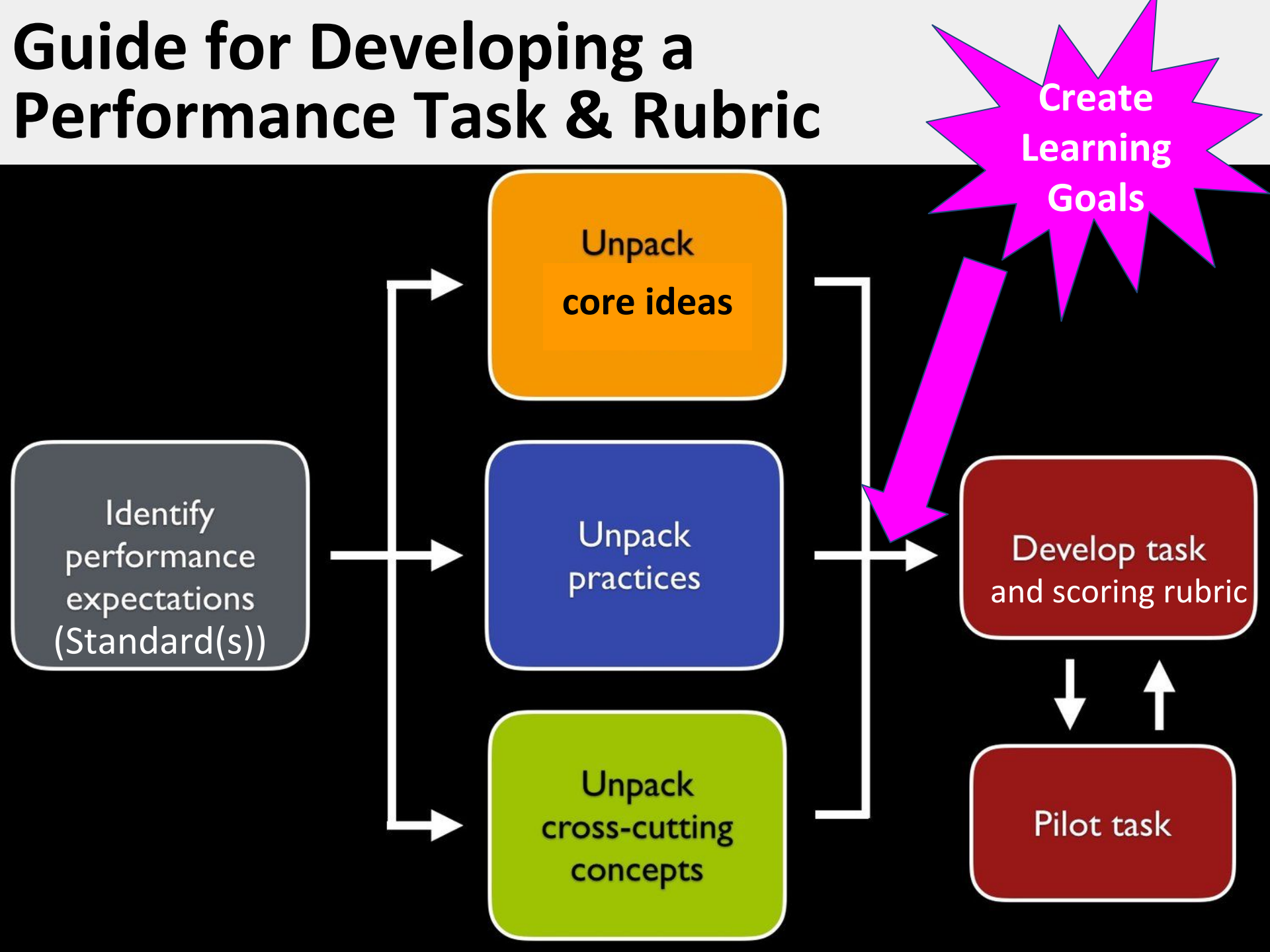**Step 2:** Identify the 3-dimensions that you want to assess

Step 3: Identify learning goals, Evidence of Learning (EoLs), or learning claims

Step 4: Construct PT questions and prompts aligned with EoLS/Learning Claims

Step 5: Develop Scoring Rubric (high, low, and medium levels as needed)

Step 6: Pilot PT

Guide for Developing a Performance Task & Rubric

Create Learning Goals

Unpack **core ideas**

Identify performance expectations (Standard(s))

Unpack practices

Unpack cross-cutting concepts

Develop task and scoring rubric

Pilot task

Developing a PT: Steps 1-3

Develop task

Classroom Embedded Assessment [CEA] Title: _Weather All Around
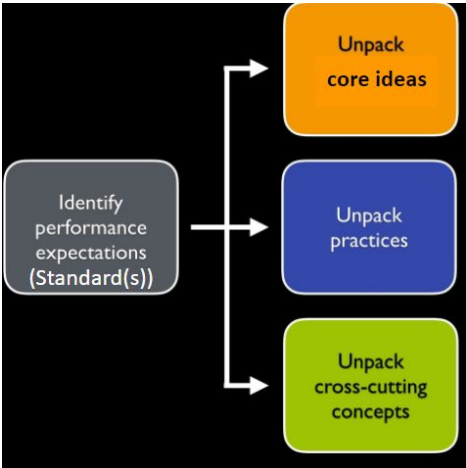
a. Targeted Performance Expectation(s)

3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. [Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.]
Science and Engineering Practice in the foreground – Analyzing and Interpreting Data
Cross Cutting Concept in the foreground – Patterns

b. Learning Goal(s)

1. Given weather data (temperature) from a given area, students will organize and display their data, using a bar graph or pictograph.
2. Students will identify patterns in the month's data to describe the weather that month.
3. Students will predict (make suggestions about) what someone should wear in that location if they were going to visit, based on the patterns observed in the weather data.

a.

Identify performance expectations (Standard(s))

Unpack core ideas

Unpack practices

Unpack cross-cutting concepts

Step 1 & 2

b.

Create Learning Goals

Step 3

Step 4: Construct PT Questions & Prompts

Phenomena - Observable events in the natural world **(science)**

-OR-

Problem - human need or want **(engineering)**

Stimuli - information (e.g. data, text, etc.) required for the prompts **(also called scenarios)**

Prompts - questions on the assessment

Bar Graph

Name:

Directi

3. What patterns do you notice with the temperatures this month? Use your graph or chart to help you answer this.

_____

_____

PROMPT

_____

4. If you were going to visit this location during May, what would you pack to take for these temperatures? Give evidence from your chart or graph to support your answer.

I would take

_____

PROMPT

_____

to go to Alaska in May because

_____

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Scenarios in a Performance Task

Develop task

Engaging, relevant, and compelling scenarios in assessment tasks...

✔ Present students with **real-world** observations. **Phenomena**

✔ Are based around at least one **specific instance**, not a topic or generally observed occurrence.

✔ Are presented to students as **puzzling or intriguing**.

✔ Provide, as part of the scenario, a **compelling question or observation that needs to be explained**—in other words, scenarios clearly point out to students what aspect of the scenario is uncertain, and why figuring that uncertainty out matters to someone.

✔ Are **explainable using the grade-appropriate DCIs, SEPs, and CCCs**—and not ideas that are outside what is described by each dimension, or parts of the dimensions that are below or above grade-level.

✔ **Effectively use at least 2 modalities** (e.g., text-based descriptions, images, video, etc) to present information.

✔ Present **real or well-crafted, grade-appropriate data**, if data are being used.

✔ **Use as many words as needed** to convey the relevant and compelling features of the phenomena, **but no more.**

✔ Are **sufficiently rich to drive the task at hand**—they provide students with enough information to engage in the whole task without including unnecessary information that might distract or confuse students. Note that whether a task is "rich enough" depends on the length and purpose of the task.

As you look at this, what matches with your current thinking about assessments? What is new?

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Step 5: Develop Scoring Rubric

Success Criteria for Learning Goal 1 –

- Given weather data (temperature) from a given area, students will organize and display their data, using a bar graph or pictograph.

Successful	On the way	Not yet meeting learning goal
Student organized data into groups to help reveal patterns.	Some attempt made to organize data into groups but it is incomplete or not done accurately.	Data has not been organized.
Data is accurately represented in a chart or graph.	Data is placed into a chart or graph, but there are some errors.	Graph or chart is not constructed or doesn't make sense.

Success Criteria for Learning Goal 2 –

- Students will identify patterns in the month's data to describe the weather that month.

Successful	On the way	Not yet meeting learning goal
Student can identify patterns in temperature data (such as most days were cool, most days the highs were in the 40s, or it got colder near the end of the month.)	Some attempt made to find patterns or commonalities in data but answers aren't totally on track.	No pattern found, or the pattern mentioned is not accurate.

Success Criteria for Learning Goal 3 –

- Students will predict (make suggestions about) what someone should wear in that location if they were going to visit, based on the patterns observed in the weather data.

Successful	On the way	Not yet meeting learning goal
Student suggests appropriate things to pack based on temperature pattern observed. They provide evidence for their answer from their data.	Student suggests things to pack that seem appropriate for the temperature patterns observed but doesn't provide data from their chart to support the choice.	Student is not able to predict based on patterns and does not include data in their answer.

Step 6: Pilot Performance Task

Pilot task

Purpose:

- Determine if the PT is aligned with your goals
- Imagine the range of possible student responses to question
- Construct an ideal student response
- Share, review, and revise

In this task, this can be found in part:

● e - success criteria
● g - student work samples
● h - reflection & revisions

Guide for Developing a Performance Task & Rubric

Step 1: Review Standard/PE

Step 2: Identify the 3-dimensions that you want to assess

Step 3: Identify learning goals, Evidence of Learning (EoLs), learning claims

Step 4: Construct PT questions and prompts aligned with EoLS/Learning Claims

Step 5: Develop Scoring Rubric (high, low, and medium levels as needed)

Step 6: Pilot PT

But...what happens if you find a PT? How do you check for alignment to standards?

How to See if a Task is Aligned to 3-Dimensional Science Standards

If task is NGSS- compare to AzSS **FIRST**:
[Standards Planning Summaries- NGSS vs. AzSS](#)

Next- look at the NGSS Evidence statements:
https://www.nextgenscience.org/evidence-statements

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Screening a Performance Task (PT)

| Question	Yes	No
1. The task introduces new concepts or ideas.	☐	☐
2. Is there a **phenomenon** or problem driving the task?	☐	☐
3. Can the majority of the task be answered **without** using information provided by the task scenario?	☐	☐
4. Can significant portions of the task be answered successfully by using **rote knowledge** (e.g., definitions, prescriptive or memorized procedure)?	☐	☐
5. Does the majority of the task require students to **use reasoning** to successfully complete the task?	☐	☐
6. Does the task require students to use some understanding of **disciplinary core ideas** to successfully complete the task?	☐	☐
7. Do students have to use at least one **science and engineering practice** to successfully complete the task?	☐	☐
8. Are the **dimensions assessed separately** in the majority of the task?	☐	☐
9. Is the task **coherent and comprehensible** from the student perspective?	☐	☐
10. The prompts explicitly mention or require students to use **crosscutting concepts**. (yellow box is goal, but may not be possible)	☐	☐

#10 in Dashboard

Grade 2: Germinating Seeds TCT

Jan-April
May-Aug
Sept-Dec

Screening a Performance Task (PT)

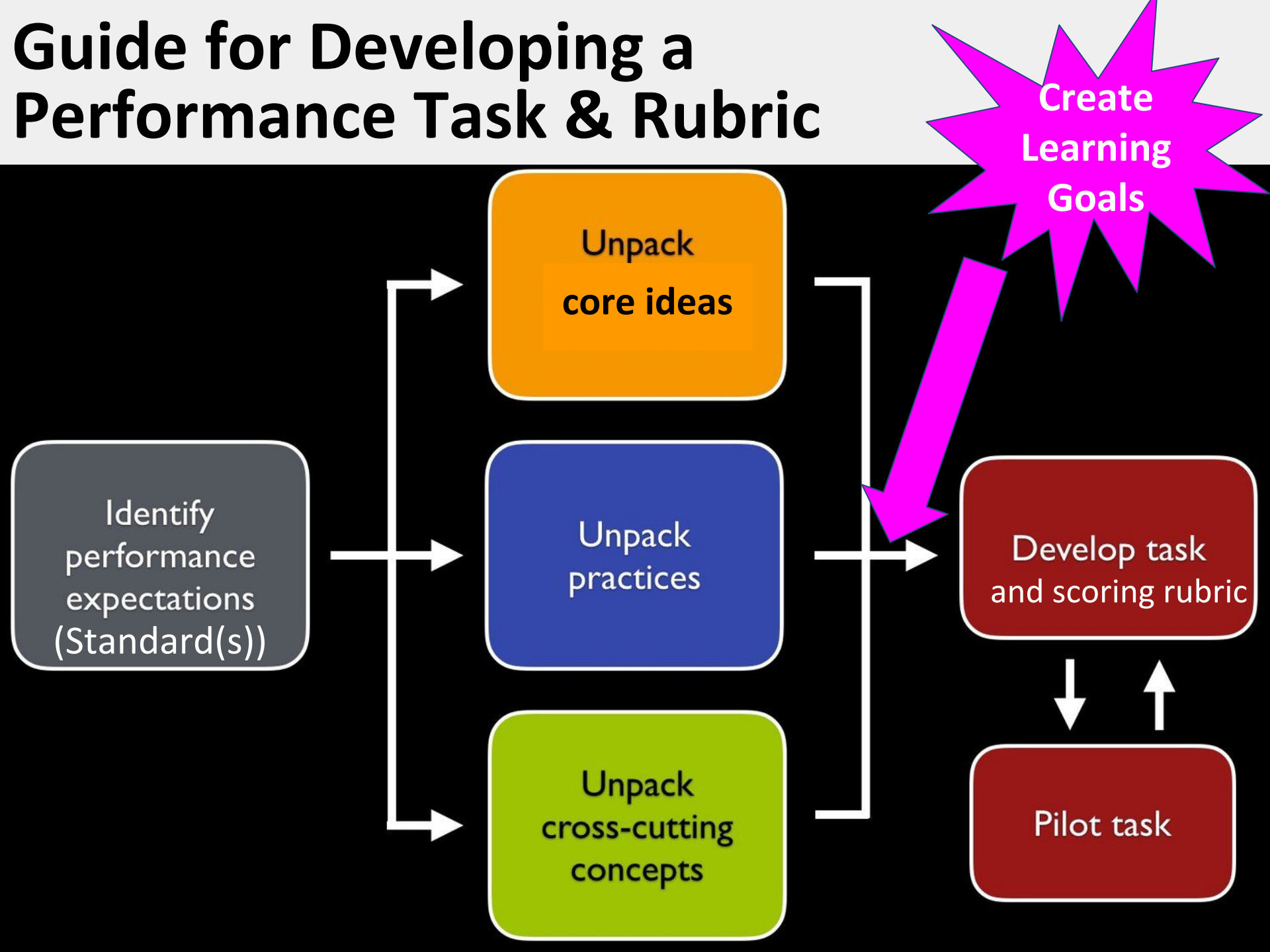| Question	Yes	No
1. The task introduces new concepts or ideas.	☐ 🚩	☐
2. Is there a **phenomenon or problem driving the task**?	☐	☐ 🚩
3. Can the majority of the task be answered **without** using information provided by the task scenario?	☐ 🚩	☐
4. Can significant portions of the task be answered successfully by using **rote knowledge** (e.g., definitions, prescriptive or memorized procedure)?	☐ 🚩	☐
5. Does the majority of the task require students to **use reasoning** to successfully complete the task?	☐	☐ 🚩
6. Does the task require students to use some understanding of **disciplinary core ideas** to successfully complete the task?	☐	☐ 🚩
7. Do students have to use at least one **science and engineering practice** to successfully complete the task?	☐	☐ 🚩
8. Are the **dimensions assessed separately** in the majority of the task?	☐ 🚩	☐
9. Is the task **coherent and comprehensible** from the student perspective?	☐	☐ 🚩
10. The prompts explicitly mention or require students to use **crosscutting concepts**.	☐ ⭐	☐

Now What?
1. Review "Xs" and compare to red flags
2. Determine if you will keep, adapt, kick it
3. Share ideas in chat & describe WHY

💬 Chat
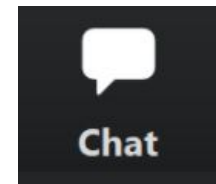
Based on your assessment needs and the task purpose recorded above, make a recommendation about this task moving forward (choose one):

☐ Keep it - ready to use as is.

☐ Adapt it – minor changes needed to make it match assessment needs.

☐ Kick it – not usable given the assessment needs.

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Guide for Developing a Performance Task & Rubric

Create Learning Goals

Identify performance expectations (Standard(s))

Unpack core ideas

Unpack practices

Unpack cross-cutting concepts

Develop task and scoring rubric

Pilot task

Consideration: Student Checklist

Questions	Checklist	
Question 1		I grouped the data to look for patterns
Question 2		I created a graph or chart of the temperatures in Alaska
Question 3		I used my graph or chart to describe patterns
Question 4		I described what I would pack for these temperatures
		I gave evidence for what I packed based upon my chart

- **Why might a checklist be an important component of a performance task?**
- **How might it benefit students?**

Developing a Performance Task

- How does this process compare to what you have traditionally done in developing assessments?

Alone Zone (by yourself)- 1 min write Waterfall

AzSCI

ARIZONA SCIENCE TEST

AzSCI Resource Suite

AzSCI Sample Test - Select Arizona, then click on "Mic Check and Sample Tests"

- Recorded Videos for Using the Sample Tests
  - Accessing the Sample Test
  - How the Tests are Set Up
  - Item Types
- Scoring Guides
  - AzSCI Scoring Guide_Grade 5
  - AzSCI Scoring Guide_Grade 8
  - AzSCI Scoring Guide_Grade_11
- Grade 8 and 11 Exhibit
  - Periodic Table of Elements
- Grade 11 Exhibit
  - Formula Reference Guide
- Item Specifications
  - Grade Band 3-5
  - Grade Band 6-8
  - High School

[ADE Friday Focus Webinars](#)

[ADE Assessment Website](#)

Other Opportunities!

Assessing in a 3-D Way

- 8 hour course to assist teachers in developing performance tasks
- Asynchronous & Synchronous using Schoology platform
- Based on grade-bands (K-2, 3-5, 6-8, HS)

PAEMST 7-12 Awards

The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) are the nation's highest honors for teachers of mathematics and science (including computer science). Nominations and applications open for mathematics and science teacher grades 7-12 opened in the Fall. To submit a nomination, you only need the teacher's contact information. If you know more than one teacher deserving this award, you may submit more than one nomination. Teachers may also initiate the application process themselves at www.paemst.org.

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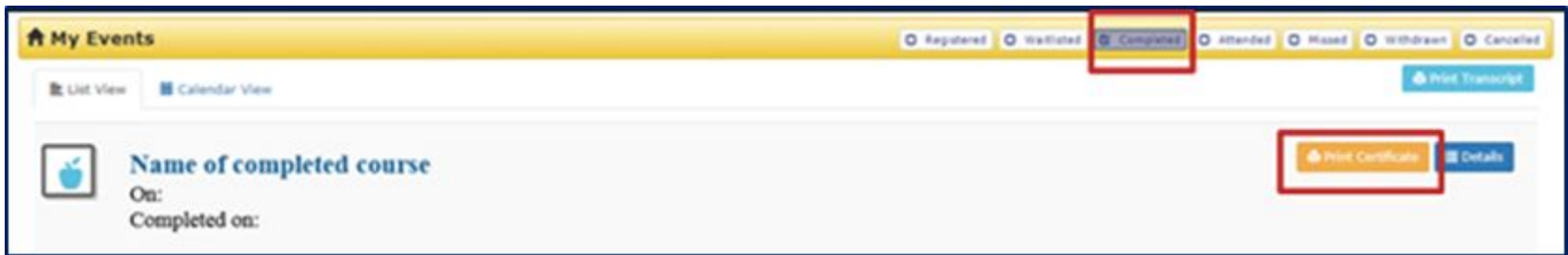
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