Supporting STEM Educators

NM PED C&I Convening
December 2, 2020

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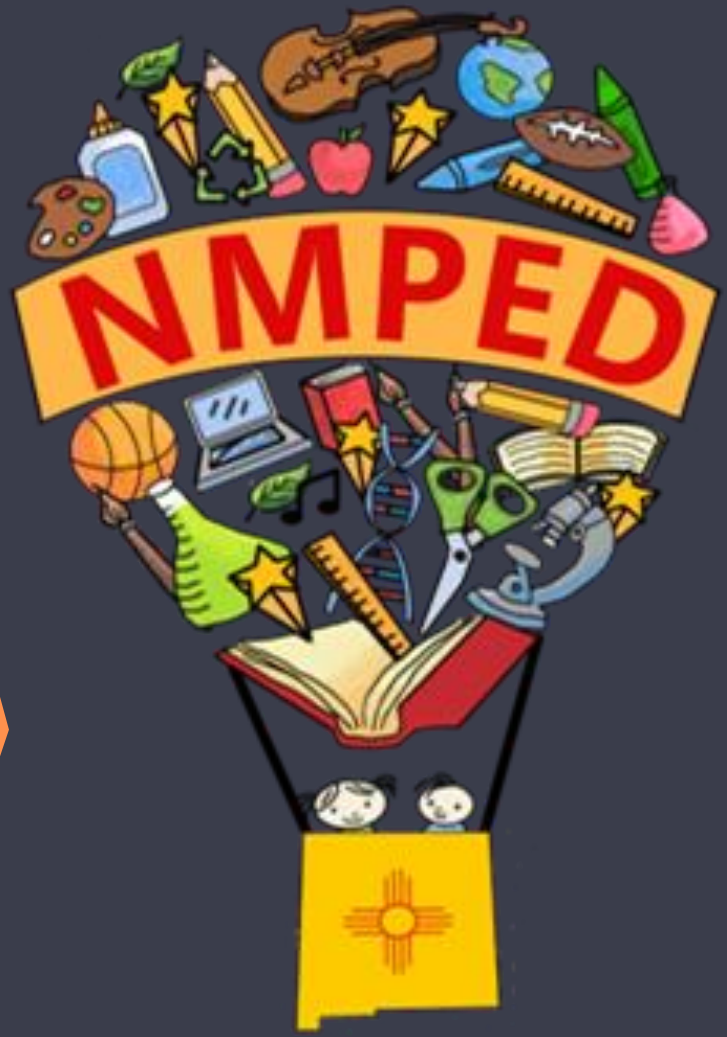
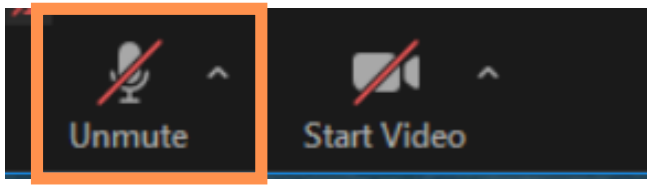
Christy Krenek, Science Specialist



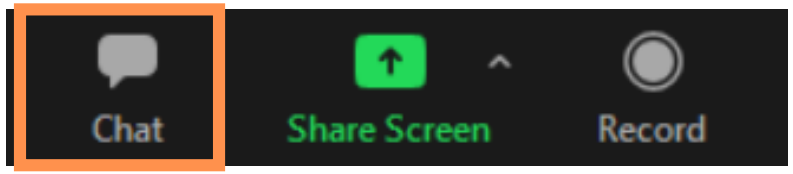
Investing for tomorrow, delivering today.

Participating in a session

- Your microphone may have been muted by the Host. This is to prevent background noise and other unwanted sound.
- Microphone and camera controls are located in the lower left corner of the Zoom screen.

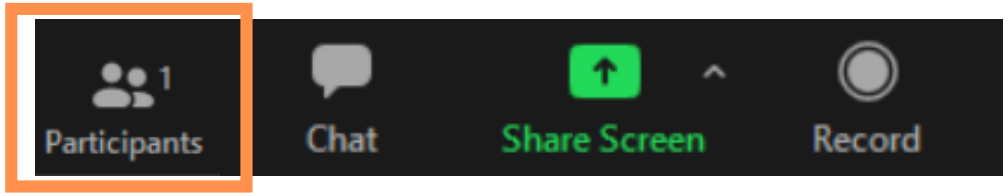


- In smaller meetings, you may wish to unmute your microphone (if allowed). If you do so, please mute yourself when done speaking.
- Chat is the preferred way to communicate with the Host in larger meetings, as it is less disruptive and allows you to post thoughts and questions as they arise, versus waiting for an opportune time to interrupt the speaker.
- The chat window can be accessed by clicking the Chat icon at the bottom of the Zoom screen.

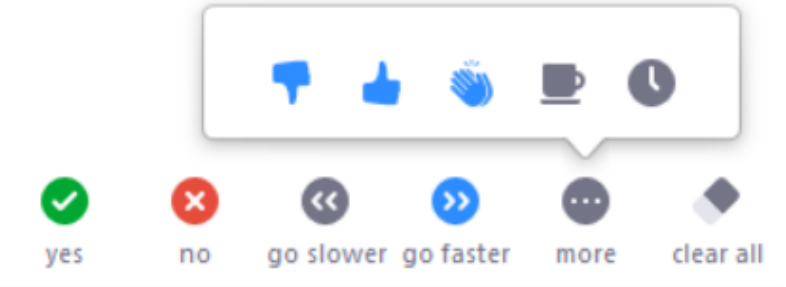


Participating in a session *(cont.)*

- The Participant icon allows non-verbal communication.



- Clicking the Participant icon opens the Participant window to see all participants and access these buttons at the bottom of the Zoom screen.



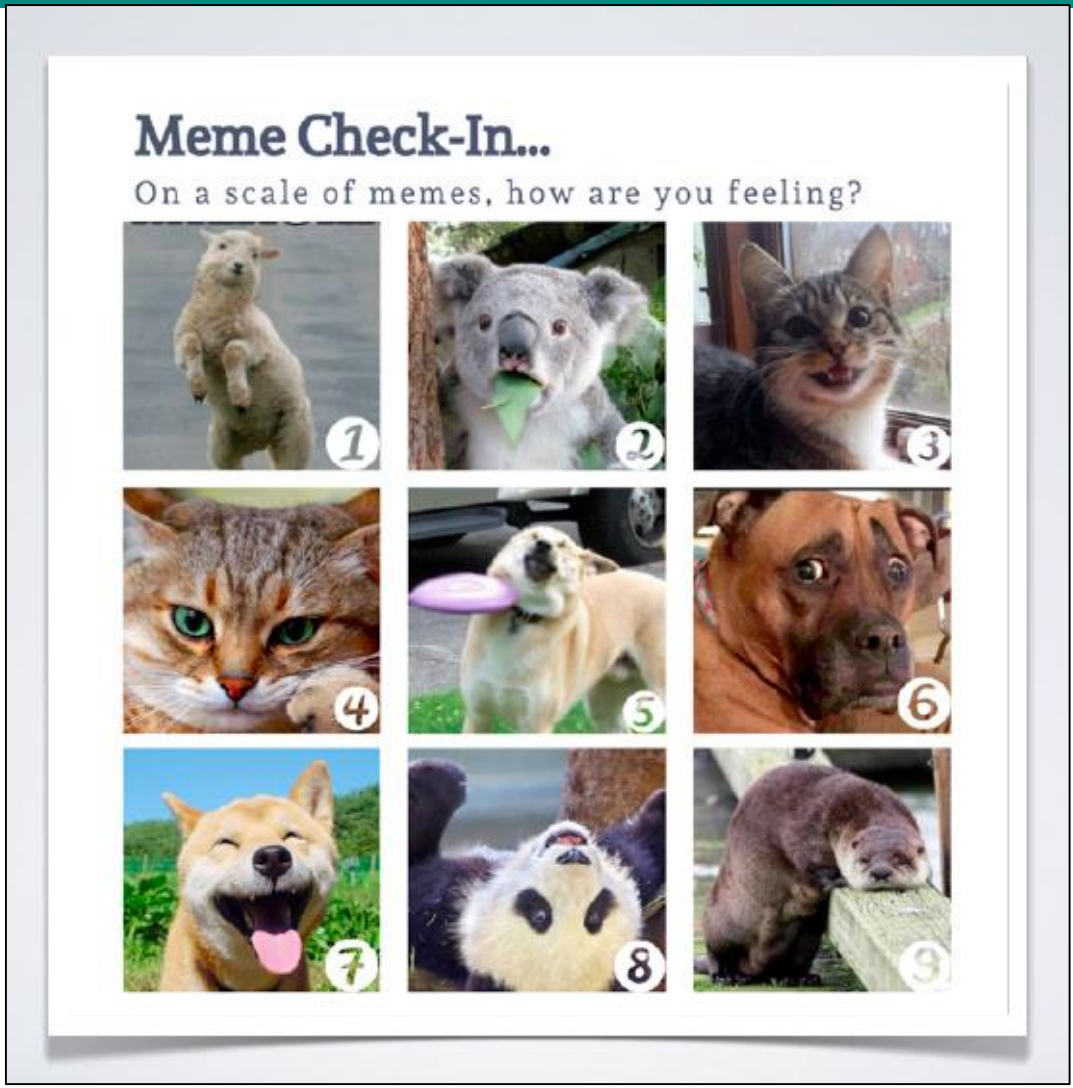
Agenda

- Tour the Math and Science Bureau website with us!
  - Reentry supports from the MSB
  - Professional Learning Opportunities

- What else can the MSB do to support STEM educators in your district?

- Q&A

Check-in



Open the **View Options** menu, and select **Annotate**.

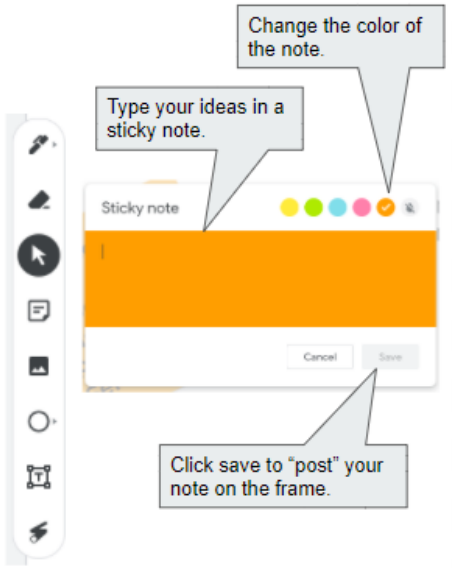
A menu bar should appear with options. Select **Stamp**.

Select your shape, and **stamp/click** on the animal that speaks to you today.

E-Notebook

Jamboard Orientation

- Jamboard is a digital whiteboard/poster
- Best used for collaboration and visualization of discussion ideas
- Each "frame" is like a slide that all participants can add to
  - Sticky notes
  - Images
  - Text boxes
  - Annotations
- **Let's try it on Frame 1!**



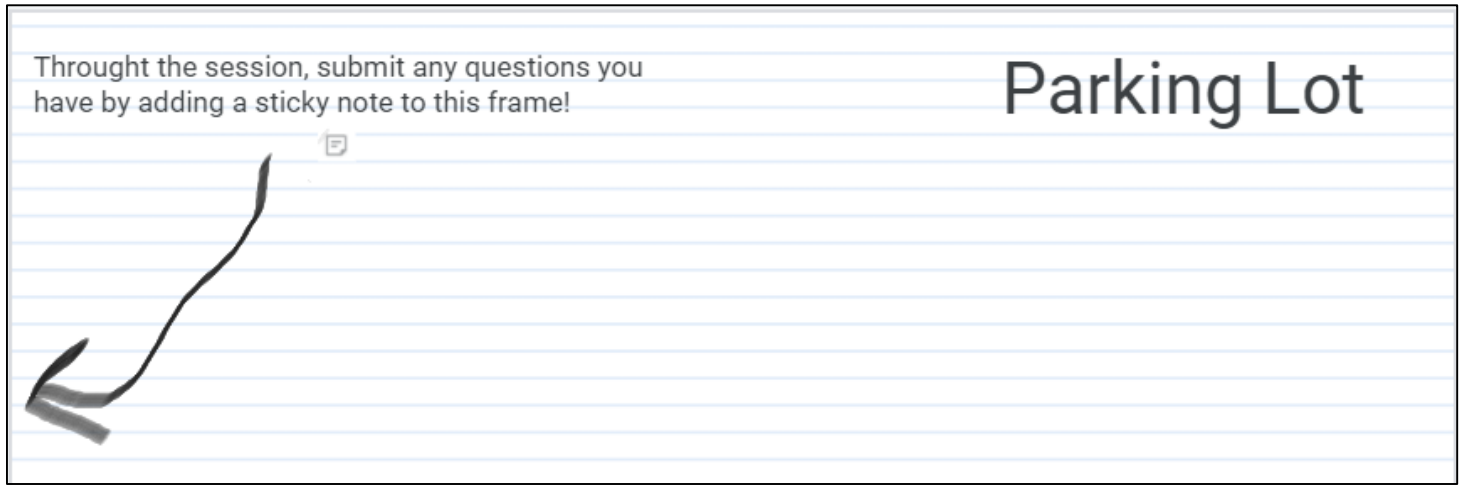
Virtual Class

Small Group Breakout

Parking Lot

What questions come up as you are exploring the Math and Science Bureau resources?

Use Supporting STEM Education Jamboard Frame 2 like a Parking Lot, and we will answer these questions during Q&A towards the end of the session.



New Mexico Instructional Scope

NEW MEXICO INSTRUCTIONAL SCOPE

NEW MEXICO INSTRUCTIONAL SCOPE

Instructional Acceleration

NEW MEXICO GUIDANCE

This document is designed to accompany the New Mexico Instructional Scope (NM IS 1.0) which is a comprehensive curriculum guidance tool for supporting educators in leading all K–12 students in accessing the Common Core State Standards Math and English Language Arts (ELA) standards at grade level. **The entire NM IS 1.0 will be launched on July 16, 2020.**

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K.G: GEOMETRY		
Cluster Statement: B: Analyze, compare, create, and compose shapes. **Supporting Cluster** (Students should spend the large majority of their time (65-85%) on the major work of the grade/course. Supporting work and, where appropriate, additional work should be connected to and engage students in the major work of the grade.)		
Standard Text	**Standard for Mathematical Practices**	**Students who demonstrate understanding can:**
K.G.B.4: Analyze and compare two-		• Describe a shape by telling

Kindergarten sample

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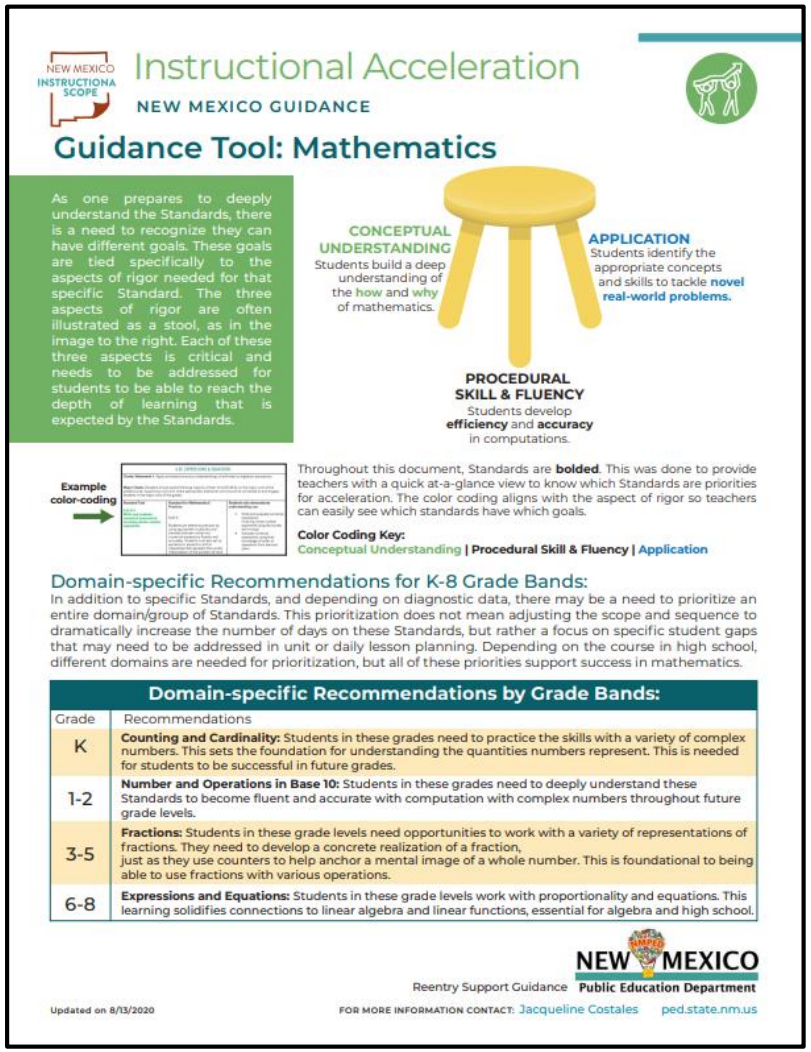
Section 3: Resources, References, and Glossary

Resources

Evidence-Based Resources	English Learner Resources	MLSS Resources	Mathematics Standard Resources
What Works Clearinghouse Best Evidence Encyclopedia Evidence for Every Students Succeeds Act Evidence in Education Lab	World-Class Instructional Design and Assessment (WIDA) Standards USCALE Language Routines for Mathematics English Language Development Standards Spanish Language Development Standards	NM Multi-Layered System of Supports (MLSS) Universal Design for Learning Guidelines Achieve the Core: Instructional Routines for Mathematics Project Zero Thinking Routines	Focus by Grade Level and Widely Applicable Prerequisites High school Coherence Map College-and Career Ready Math Shifts Fostering Math Practices: Routines for the Mathematical Practices

Resources, References, and Glossary

NMIS Support
Mathematics Acceleration Guidance



Instructional Acceleration

NEW MEXICO GUIDANCE

Guidance Tool: Mathematics

As one prepares to deeply understand the Standards, there is a need to recognize they can have different goals. These goals are tied specifically to the aspects of rigor needed for that specific Standard. The three aspects of rigor are often illustrated as a stool, as in the image to the right. Each of these three aspects is critical and needs to be addressed for students to be able to reach the depth of learning that is expected by the Standards.

CONCEPTUAL UNDERSTANDING
Students build a deep understanding of the **how** and **why** of mathematics.

APPLICATION
Students identify the appropriate concepts and skills to tackle **novel real-world problems.**

PROCEDURAL SKILL & FLUENCY
Students develop **efficiency** and **accuracy** in computations.

Example color-coding

Throughout this document, Standards are **bolded**. This was done to provide teachers with a quick at-a-glance view to know which Standards are priorities for acceleration. The color coding aligns with the aspect of rigor so teachers can easily see which standards have which goals.

Color Coding Key:
Conceptual Understanding | **Procedural Skill & Fluency** | Application

Domain-specific Recommendations for K-8 Grade Bands:

In addition to specific Standards, and depending on diagnostic data, there may be a need to prioritize an entire domain/group of Standards. This prioritization does not mean adjusting the scope and sequence to dramatically increase the number of days on these Standards, but rather a focus on specific student gaps that may need to be addressed in unit or daily lesson planning. Depending on the course in high school, different domains are needed for prioritization, but all of these priorities support success in mathematics.

Domain-specific Recommendations by Grade Bands:

Grade	Recommendations
K	**Counting and Cardinality:** Students in these grades need to practice the skills with a variety of complex numbers. This sets the foundation for understanding the quantities numbers represent. This is needed for students to be successful in future grades.
1-2	**Number and Operations in Base 10:** Students in these grades need to deeply understand these Standards to become fluent and accurate with computation with complex numbers throughout future grade levels.
3-5	**Fractions:** Students in these grade levels need opportunities to work with a variety of representations of fractions. They need to develop a concrete realization of a fraction, just as they use counters to help anchor a mental image of a whole number. This is foundational to being able to use fractions with various operations.
6-8	**Expressions and Equations:** Students in these grade levels work with proportionality and equations. This learning solidifies connections to linear algebra and linear functions, essential for algebra and high school.

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Reentry Support Guidance

Updated on 8/13/2020

FOR MORE INFORMATION CONTACT: Jacqueline Costales ped.state.nm.us

- Aligned to the New Mexico Instructional Scope
- Highlights standards focusing on:
  - Conceptual Understanding,
  - Procedural Skill & Fluency, and
  - Application
- Provides domain-specific recommendations for grades K-8

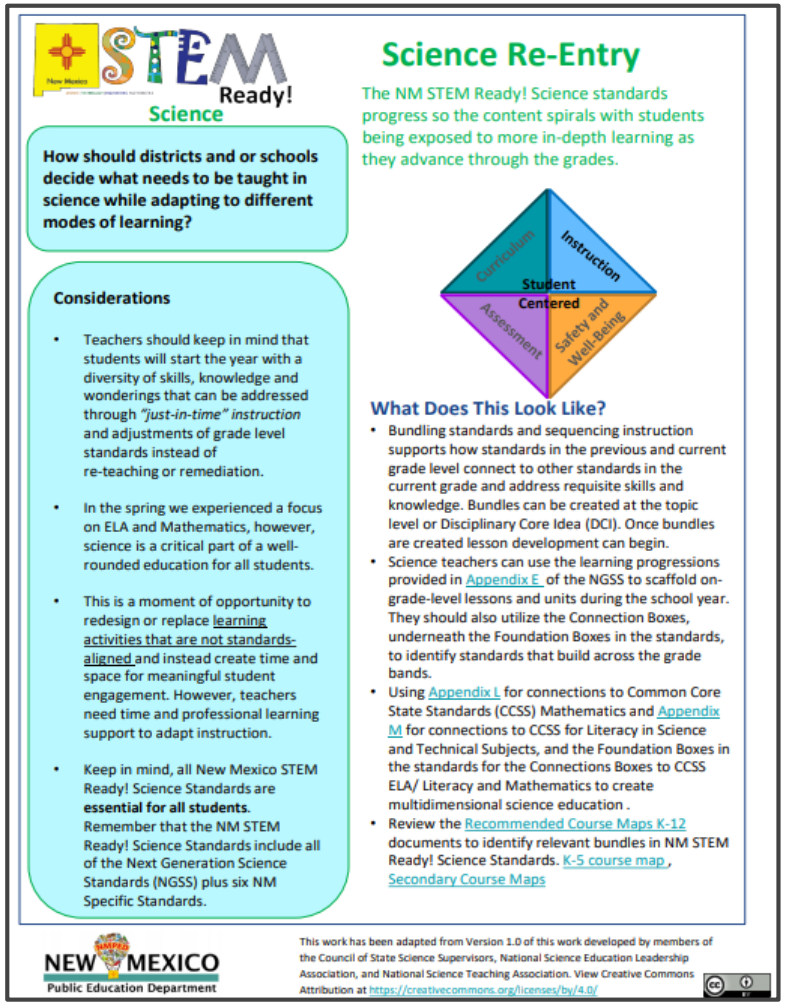
Reentry Guidance - One Pagers

As you explore each document, we would like to hear your feedback via an interactive table.

- **What do I want to remember about this resource?**
- **How might this be used?**
- **What groups could I share this with?**
- **What are my questions?**

One-Pagers Resources	*What do I want to remember about this resource?*	*How might this be used?*	*What groups could I share this with?*	What are my questions?
Science Re-Entry				
Low Tech or No Tech Math and Science				
Key Shifts Math and Science				
Changing Environments Science				

Re-entry Guidance - One Pagers
Science Re-entry



STEM Ready! Science

Science Re-Entry

The NM STEM Ready! Science standards progress so the content spirals with students being exposed to more in-depth learning as they advance through the grades.

How should districts and or schools decide what needs to be taught in science while adapting to different modes of learning?

Considerations

- Teachers should keep in mind that students will start the year with a diversity of skills, knowledge and wonderings that can be addressed through *"just-in-time" instruction* and adjustments of grade level standards instead of re-teaching or remediation.
- In the spring we experienced a focus on ELA and Mathematics, however, science is a critical part of a well-rounded education for all students.
- This is a moment of opportunity to redesign or replace learning activities that are not standards-aligned and instead create time and space for meaningful student engagement. However, teachers need time and professional learning support to adapt instruction.
- Keep in mind, all New Mexico STEM Ready! Science Standards are **essential for all students**. Remember that the NM STEM Ready! Science Standards include all of the Next Generation Science Standards (NGSS) plus six NM Specific Standards.

What Does This Look Like?

- Bundling standards and sequencing instruction supports how standards in the previous and current grade level connect to other standards in the current grade and address requisite skills and knowledge. Bundles can be created at the topic level or Disciplinary Core Idea (DCI). Once bundles are created lesson development can begin.
- Science teachers can use the learning progressions provided in Appendix E of the NGSS to scaffold on-grade-level lessons and units during the school year. They should also utilize the Connection Boxes, underneath the Foundation Boxes in the standards, to identify standards that build across the grade bands.
- Using Appendix L for connections to Common Core State Standards (CCSS) Mathematics and Appendix M for connections to CCSS for Literacy in Science and Technical Subjects, and the Foundation Boxes in the standards for the Connections Boxes to CCSS ELA/ Literacy and Mathematics to create multidimensional science education .
- Review the Recommended Course Maps K-12 documents to identify relevant bundles in NM STEM Ready! Science Standards. K-5 course map , Secondary Course Maps

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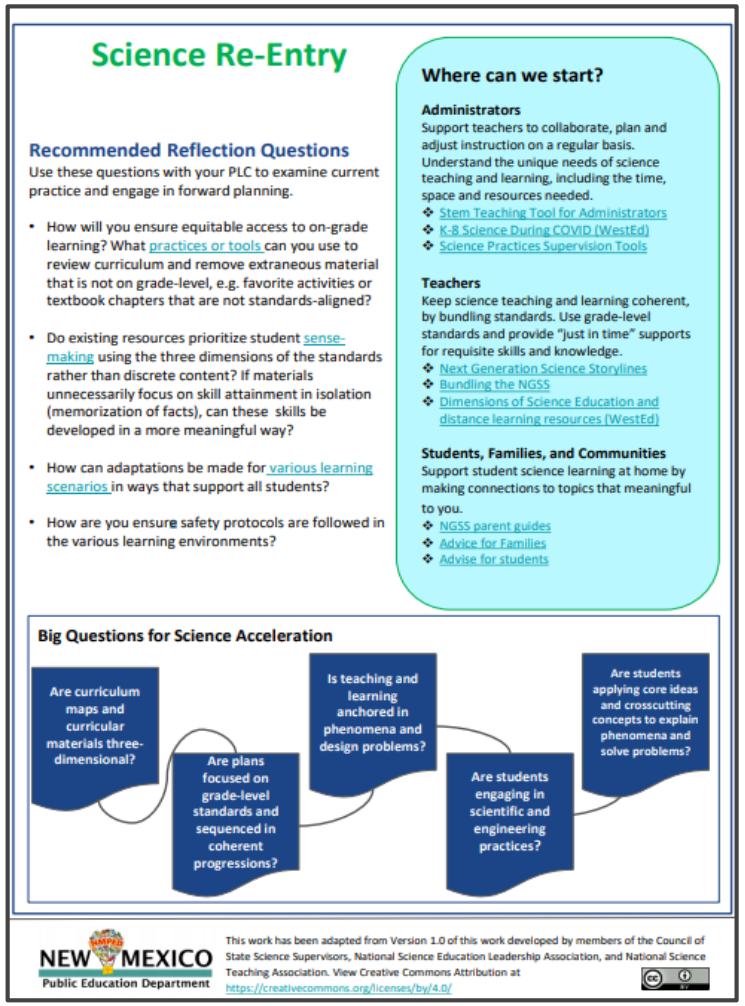
- New Mexico STEM Ready! Science Standards acceleration by bundling standards.
- Bundles and use of storylines provide students with equitable access to grade level learning.



Science Re-Entry

Recommended Reflection Questions

Use these questions with your PLC to examine current practice and engage in forward planning.

- How will you ensure equitable access to on-grade learning? What practices or tools can you use to review curriculum and remove extraneous material that is not on grade-level, e.g. favorite activities or textbook chapters that are not standards-aligned?
- Do existing resources prioritize student sense-making using the three dimensions of the standards rather than discrete content? If materials unnecessarily focus on skill attainment in isolation (memorization of facts), can these skills be developed in a more meaningful way?
- How can adaptations be made for various learning scenarios in ways that support all students?
- How are you ensure safety protocols are followed in the various learning environments?

Where can we start?

Administrators
Support teachers to collaborate, plan and adjust instruction on a regular basis. Understand the unique needs of science teaching and learning, including the time, space and resources needed.
- Stem Teaching Tool for Administrators
- K-8 Science During COVID (WestEd)
- Science Practices Supervision Tools

Teachers
Keep science teaching and learning coherent, by bundling standards. Use grade-level standards and provide "just in time" supports for requisite skills and knowledge.
- Next Generation Science Storylines
- Bundling the NGSS
- Dimensions of Science Education and distance learning resources (WestEd)

Students, Families, and Communities
Support student science learning at home by making connections to topics that meaningful to you.
- NGSS parent guides
- Advice for Families
- Advise for students

Big Questions for Science Acceleration

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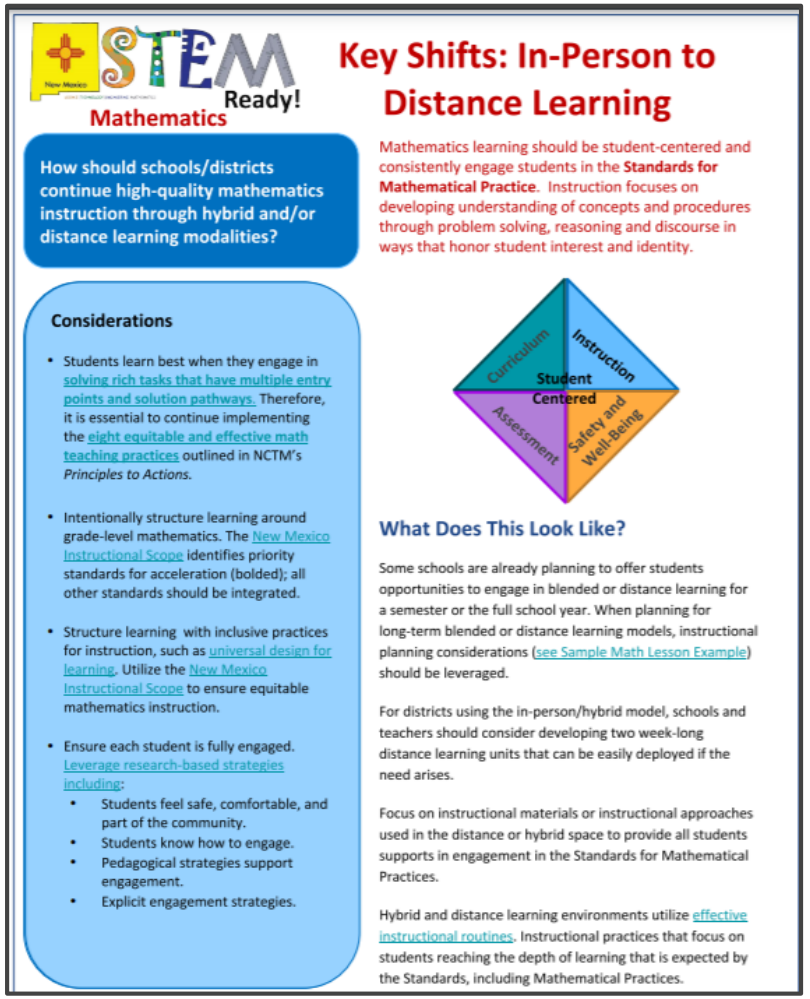
Reentry Guidance - One Pagers
Key Shift for Distance Learning



STEM Ready!

Mathematics

Key Shifts: In-Person to Distance Learning

How should schools/districts continue high-quality mathematics instruction through hybrid and/or distance learning modalities?

Mathematics learning should be student-centered and consistently engage students in the **Standards for Mathematical Practice**. Instruction focuses on developing understanding of concepts and procedures through problem solving, reasoning and discourse in ways that honor student interest and identity.

Considerations

- Students learn best when they engage in solving rich tasks that have multiple entry points and solution pathways. Therefore, it is essential to continue implementing the eight equitable and effective math teaching practices outlined in NCTM's *Principles to Actions.*
- Intentionally structure learning around grade-level mathematics. The New Mexico Instructional Scope identifies priority standards for acceleration (bolded); all other standards should be integrated.
- Structure learning with inclusive practices for instruction, such as universal design for learning. Utilize the New Mexico Instructional Scope to ensure equitable mathematics instruction.
- Ensure each student is fully engaged. Leverage research-based strategies including:
  - Students feel safe, comfortable, and part of the community.
  - Students know how to engage.
  - Pedagogical strategies support engagement.
  - Explicit engagement strategies.

What Does This Look Like?

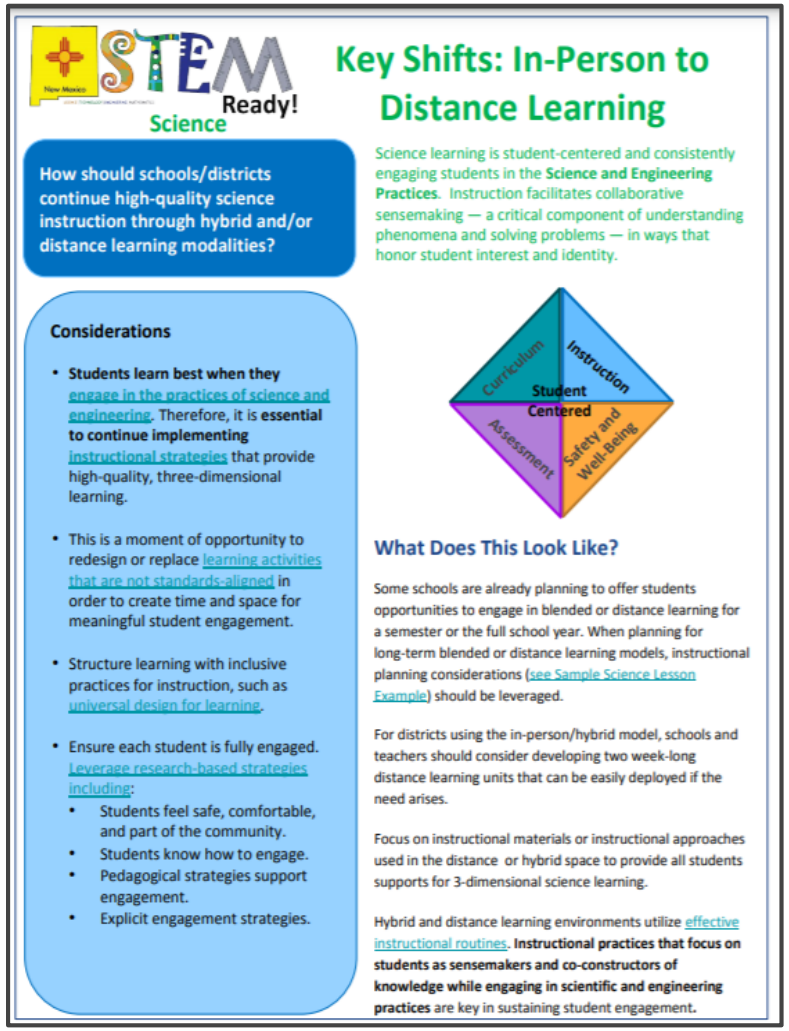
Some schools are already planning to offer students opportunities to engage in blended or distance learning for a semester or the full school year. When planning for long-term blended or distance learning models, instructional planning considerations (see Sample Math Lesson Example) should be leveraged.

For districts using the in-person/hybrid model, schools and teachers should consider developing two week-long distance learning units that can be easily deployed if the need arises.

Focus on instructional materials or instructional approaches used in the distance or hybrid space to provide all students supports in engagement in the Standards for Mathematical Practices.

Hybrid and distance learning environments utilize effective instructional routines. Instructional practices that focus on students reaching the depth of learning that is expected by the Standards, including Mathematical Practices.

Focus on promoting discourse and facilitating connections through the standards



STEM Ready!

Science

Key Shifts: In-Person to Distance Learning

How should schools/districts continue high-quality science instruction through hybrid and/or distance learning modalities?

Science learning is student-centered and consistently engaging students in the **Science and Engineering Practices**. Instruction facilitates collaborative sensemaking — a critical component of understanding phenomena and solving problems — in ways that honor student interest and identity.

Considerations

- **Students learn best when they** engage in the practices of science and engineering. Therefore, it is **essential to continue implementing** instructional strategies that provide high-quality, three-dimensional learning.
- This is a moment of opportunity to redesign or replace learning activities that are not standards-aligned in order to create time and space for meaningful student engagement.
- Structure learning with inclusive practices for instruction, such as universal design for learning.
- Ensure each student is fully engaged. Leverage research-based strategies including:
  - Students feel safe, comfortable, and part of the community.
  - Students know how to engage.
  - Pedagogical strategies support engagement.
  - Explicit engagement strategies.

What Does This Look Like?

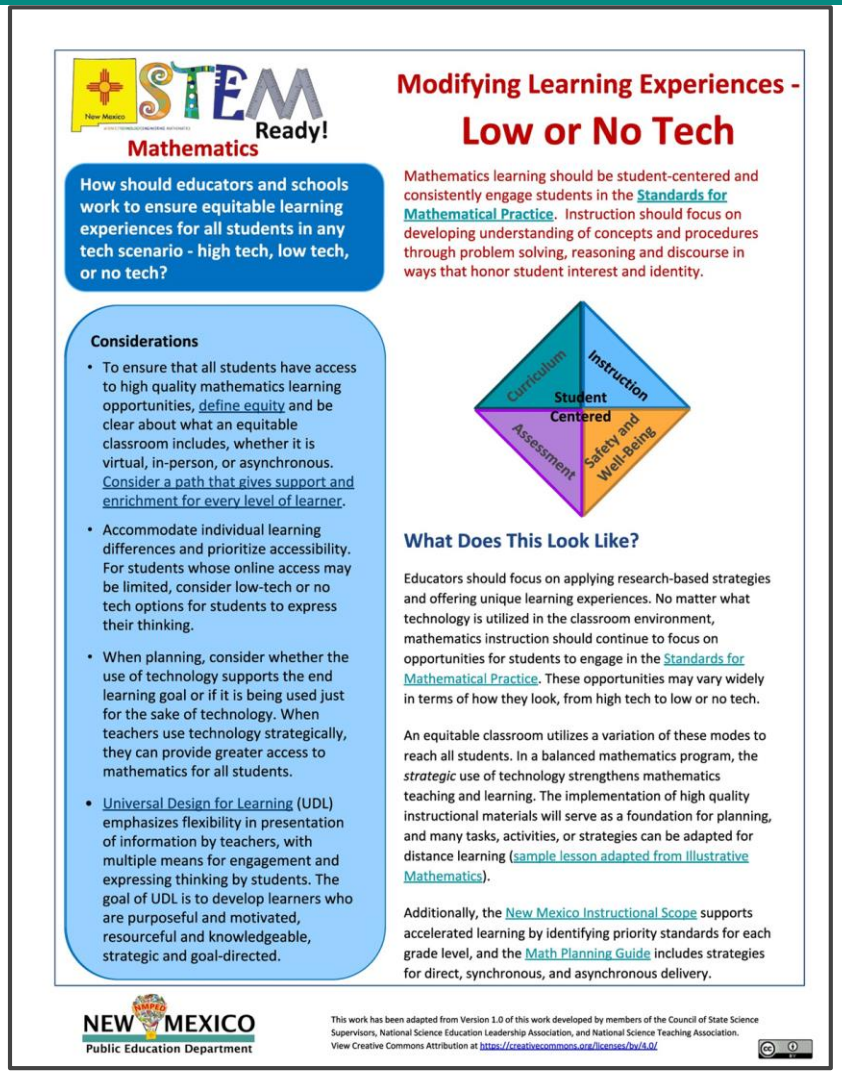
Some schools are already planning to offer students opportunities to engage in blended or distance learning for a semester or the full school year. When planning for long-term blended or distance learning models, instructional planning considerations (see Sample Science Lesson Example) should be leveraged.

For districts using the in-person/hybrid model, schools and teachers should consider developing two week-long distance learning units that can be easily deployed if the need arises.

Focus on instructional materials or instructional approaches used in the distance or hybrid space to provide all students supports for 3-dimensional science learning.

Hybrid and distance learning environments utilize effective instructional routines. **Instructional practices that focus on students as sensemakers and co-constructors of knowledge while engaging in scientific and engineering practices** are key in sustaining student engagement.

Reentry Guidance - One Pagers
Low or No Tech



New Mexico STEM Ready!

Mathematics

Modifying Learning Experiences - Low or No Tech

How should educators and schools work to ensure equitable learning experiences for all students in any tech scenario - high tech, low tech, or no tech?

Mathematics learning should be student-centered and consistently engage students in the Standards for Mathematical Practice. Instruction should focus on developing understanding of concepts and procedures through problem solving, reasoning and discourse in ways that honor student interest and identity.

Considerations

- To ensure that all students have access to high quality mathematics learning opportunities, define equity and be clear about what an equitable classroom includes, whether it is virtual, in-person, or asynchronous. Consider a path that gives support and enrichment for every level of learner.
- Accommodate individual learning differences and prioritize accessibility. For students whose online access may be limited, consider low-tech or no tech options for students to express their thinking.
- When planning, consider whether the use of technology supports the end learning goal or if it is being used just for the sake of technology. When teachers use technology strategically, they can provide greater access to mathematics for all students.
- Universal Design for Learning (UDL) emphasizes flexibility in presentation of information by teachers, with multiple means for engagement and expressing thinking by students. The goal of UDL is to develop learners who are purposeful and motivated, resourceful and knowledgeable, strategic and goal-directed.

What Does This Look Like?

Educators should focus on applying research-based strategies and offering unique learning experiences. No matter what technology is utilized in the classroom environment, mathematics instruction should continue to focus on opportunities for students to engage in the Standards for Mathematical Practice. These opportunities may vary widely in terms of how they look, from high tech to low or no tech.

An equitable classroom utilizes a variation of these modes to reach all students. In a balanced mathematics program, the *strategic* use of technology strengthens mathematics teaching and learning. The implementation of high quality instructional materials will serve as a foundation for planning, and many tasks, activities, or strategies can be adapted for distance learning (sample lesson adapted from Illustrative Mathematics).

Additionally, the New Mexico Instructional Scope supports accelerated learning by identifying priority standards for each grade level, and the Math Planning Guide includes strategies for direct, synchronous, and asynchronous delivery.

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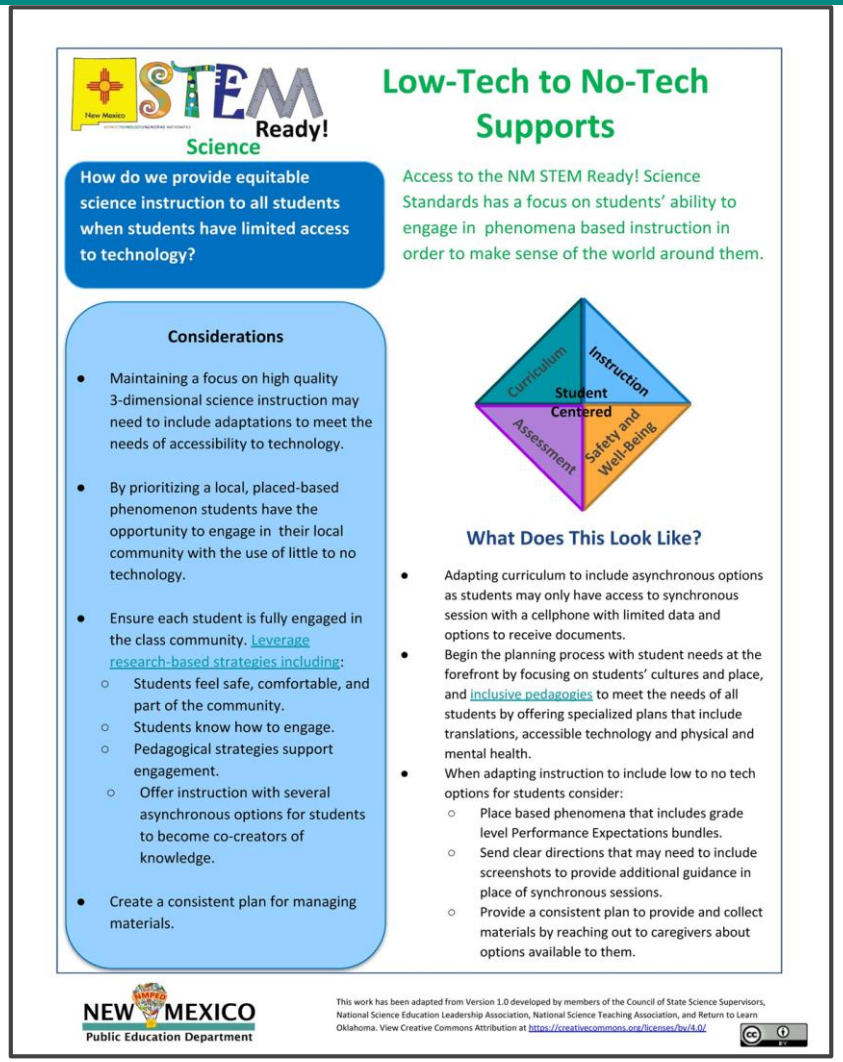
- Math - examples of modifications are offered in a Launch, Explore, Summarize instructional model
- Science - emphasizes using local phenomena and heritage based learning opportunities



New Mexico STEM Ready!

Science

Low-Tech to No-Tech Supports

How do we provide equitable science instruction to all students when students have limited access to technology?

Access to the NM STEM Ready! Science Standards has a focus on students' ability to engage in phenomena based instruction in order to make sense of the world around them.

Considerations

- Maintaining a focus on high quality 3-dimensional science instruction may need to include adaptations to meet the needs of accessibility to technology.
- By prioritizing a local, placed-based phenomenon students have the opportunity to engage in their local community with the use of little to no technology.
- Ensure each student is fully engaged in the class community. Leverage research-based strategies including:
  - Students feel safe, comfortable, and part of the community.
  - Students know how to engage.
  - Pedagogical strategies support engagement.
  - Offer instruction with several asynchronous options for students to become co-creators of knowledge.
- Create a consistent plan for managing materials.

What Does This Look Like?

- Adapting curriculum to include asynchronous options as students may only have access to synchronous session with a cellphone with limited data and options to receive documents.
- Begin the planning process with student needs at the forefront by focusing on students' cultures and place, and inclusive pedagogies to meet the needs of all students by offering specialized plans that include translations, accessible technology and physical and mental health.
- When adapting instruction to include low to no tech options for students consider:
  - Place based phenomena that includes grade level Performance Expectations bundles.
  - Send clear directions that may need to include screenshots to provide additional guidance in place of synchronous sessions.
  - Provide a consistent plan to provide and collect materials by reaching out to caregivers about options available to them.

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Reentry Guidance - One Pagers
Changing Environment - Local Phenomena

Explore Changing Environment Through Local Phenomena

How do we leverage students' current environment to support grade-level science instruction?

Access to the NM STEM Ready! Science Standards has a focus on students' ability to engage in phenomena-based instruction in order to make sense of the world around them.

Considerations

- By prioritizing a local, placed-based phenomenon, students have the opportunity to engage in their local community with the use of little to no technology.
- Ensure each student is fully engaged. Leverage research-based strategies including:
  - Students feel safe, comfortable, and part of the community.
  - Students know how to engage.
  - Pedagogical strategies support engagement.
  - Offer instruction with several synchronous and asynchronous options for students to become co-creators of knowledge.
- Maintaining a focus on high quality 3-Dimensional science instruction may need to include adaptations and resources outside of your current curriculum.
- Families should be seen as assets and knowledge source that can be leveraged in multiple ways to support the student and the class.

What Does This Look Like?

- Engaging students in place-based phenomena allows for the opportunity to open lines of communication with families to learn about interest and resources available. Consider adapting or choosing phenomena or problems that:
  - make clear connections to students' interest and backgrounds,
  - require students to build toward grade-appropriate learning, and
  - can be investigated safely with materials that are widely available.
- Begin the planning process by focusing on students' cultures and place, and inclusive pedagogies to meet the needs of all students by offering specialized plans that include translations, accessible technology and physical and mental health.
- Providing students with several assignment options that meet the targeted Performance Expectation bundle.

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Explore Changing Environment Through Local Phenomena

What Does This Look Like? (*cont.*)

Considerations for different approaches as you plan:

Instructional approaches	Description
Thematic Units	A Thematic Unit includes a series of lessons, integrating ELA, math, science and social studies over several days or weeks.
Citizen Science	To participate in the scientific process of addressing a real-world problem by formulating research questions, conducting investigations, collecting and analyzing data, interpreting results, and making new discoveries and solving problems.
Engaging in Place-based Phenomena and Problems.	Students and caregivers have a wealth of knowledge that can be accessed to strengthen student learning. Engaging students and caregivers in making sense of the community around them or working towards a solution to a community or home problem allows students to engage with the NM STEM Ready! Science Standards.

Explore Changing Environment Through Local Phenomena

Recommended Reflection Questions

Use these questions with your PLC to examine current practice and engage in forward planning.

- How do we adapt our current materials to leverage the multiple content areas to provide a holistic learning experience?
- How can we adapt instructional materials to include communities and families knowledge when locating phenomena or problems?
- In what varied ways could families and or caregivers be invited to participate in science learning (keeping in mind current household demands on time)?
- What community partnerships or out of school time networks could be leveraged to provide additional support in providing science instructional materials?

Where can we start?

Administrators

Understand the unique needs of science teaching and learning, and ensure that science is included in discussions and decision-making.

- ★ NGSS Overview for Principals
- ★ K–8 Science During COVID (WestEd)
- ★ Restart and Recovery (CCSSO)
- ★ Teaching K-12 Science and Engineering During a Crisis (2020
- ★ Supporting equitable Home-Based Science Teaching and Learning During COVID-19

Teachers

Adhere to a three-dimensional vision of science teaching and learning by leveraging science at home.

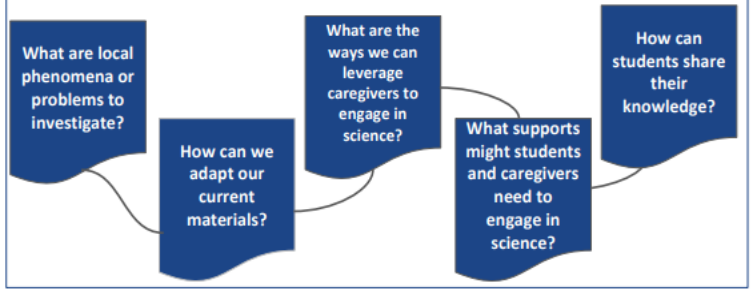
- ★ Phenomena, Not Just for the Classroom
- ★ Pass the Science Please: Science Talk Moves
- ★ Sample Science Menu
- ★ NSTA's Daily Do
- ★ Citizen Science
- ★ How to launch STEM investigations that build on student and community interest and expertise

Students, Families, and Communities

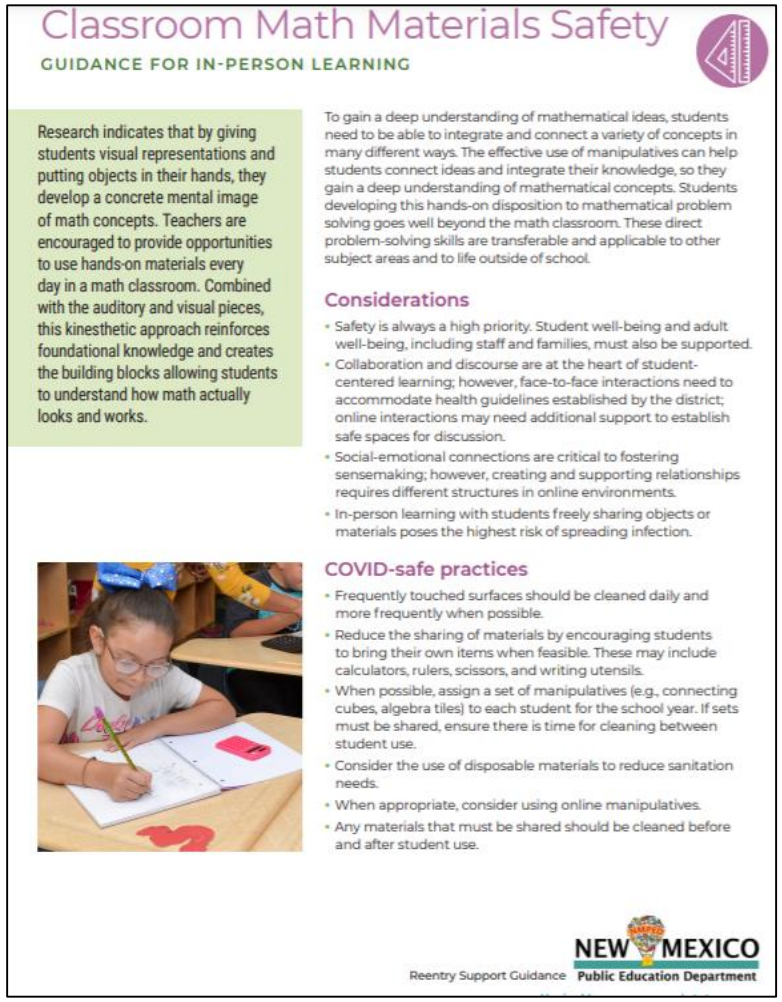
Connect to high-leverage science teaching and learning practices, such as phenomena, science notebooks, and science talk.

- ★ Phenomena
- ★ Science Talk Moves
- ★ Science Notebooks

Big Questions for Adjusting Instruction to Support the Home Environment



Reentry Guidance - One Pagers
Materials Safety Guidance



Classroom Math Materials Safety

GUIDANCE FOR IN-PERSON LEARNING

Research indicates that by giving students visual representations and putting objects in their hands, they develop a concrete mental image of math concepts. Teachers are encouraged to provide opportunities to use hands-on materials every day in a math classroom. Combined with the auditory and visual pieces, this kinesthetic approach reinforces foundational knowledge and creates the building blocks allowing students to understand how math actually looks and works.

To gain a deep understanding of mathematical ideas, students need to be able to integrate and connect a variety of concepts in many different ways. The effective use of manipulatives can help students connect ideas and integrate their knowledge, so they gain a deep understanding of mathematical concepts. Students developing this hands-on disposition to mathematical problem solving goes well beyond the math classroom. These direct problem-solving skills are transferable and applicable to other subject areas and to life outside of school.

Considerations

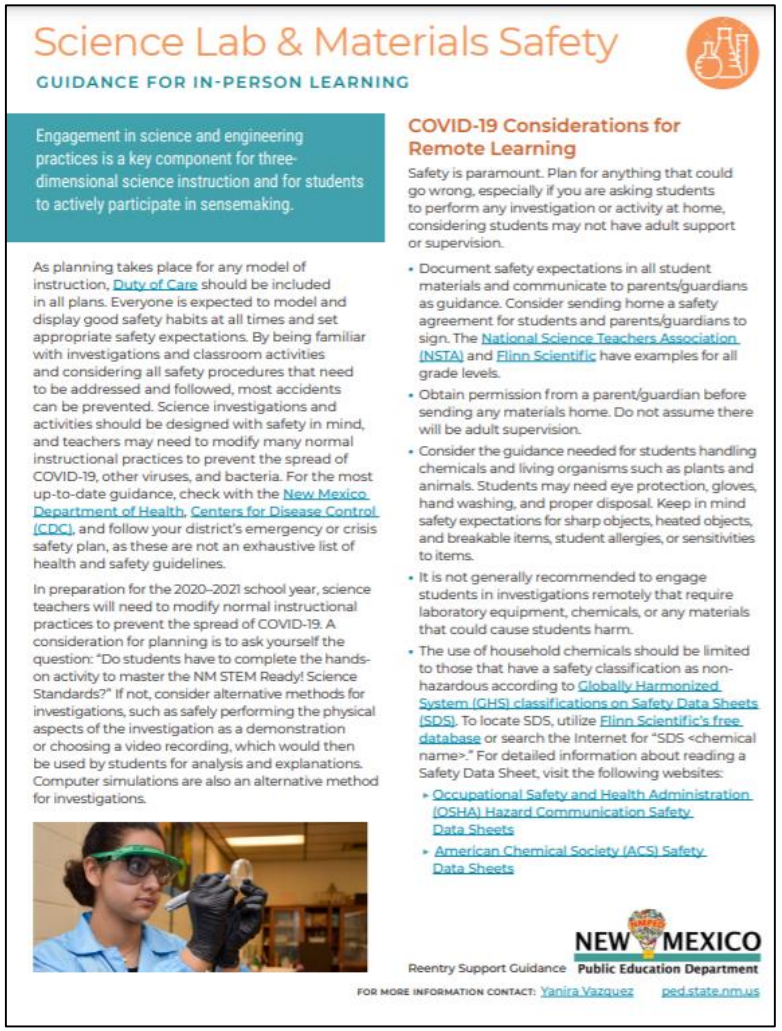
- Safety is always a high priority. Student well-being and adult well-being, including staff and families, must also be supported.
- Collaboration and discourse are at the heart of student-centered learning; however, face-to-face interactions need to accommodate health guidelines established by the district; online interactions may need additional support to establish safe spaces for discussion.
- Social-emotional connections are critical to fostering sensemaking; however, creating and supporting relationships requires different structures in online environments.
- In-person learning with students freely sharing objects or materials poses the highest risk of spreading infection.

COVID-safe practices

- Frequently touched surfaces should be cleaned daily and more frequently when possible.
- Reduce the sharing of materials by encouraging students to bring their own items when feasible. These may include calculators, rulers, scissors, and writing utensils.
- When possible, assign a set of manipulatives (e.g., connecting cubes, algebra tiles) to each student for the school year. If sets must be shared, ensure there is time for cleaning between student use.
- Consider the use of disposable materials to reduce sanitation needs.
- When appropriate, consider using online manipulatives.
- Any materials that must be shared should be cleaned before and after student use.

Reentry Support Guidance NEW MEXICO Public Education Department

For Math *and* Science - guidance to support following COVID-Safe practices



Science Lab & Materials Safety

GUIDANCE FOR IN-PERSON LEARNING

Engagement in science and engineering practices is a key component for three-dimensional science instruction and for students to actively participate in sensemaking.

As planning takes place for any model of instruction, Duty of Care should be included in all plans. Everyone is expected to model and display good safety habits at all times and set appropriate safety expectations. By being familiar with investigations and classroom activities and considering all safety procedures that need to be addressed and followed, most accidents can be prevented. Science investigations and activities should be designed with safety in mind, and teachers may need to modify many normal instructional practices to prevent the spread of COVID-19, other viruses, and bacteria. For the most up-to-date guidance, check with the New Mexico Department of Health, Centers for Disease Control (CDC), and follow your district's emergency or crisis safety plan, as these are not an exhaustive list of health and safety guidelines.

In preparation for the 2020–2021 school year, science teachers will need to modify normal instructional practices to prevent the spread of COVID-19. A consideration for planning is to ask yourself the question: "Do students have to complete the hands-on activity to master the NM STEM Ready! Science Standards?" If not, consider alternative methods for investigations, such as safely performing the physical aspects of the investigation as a demonstration or choosing a video recording, which would then be used by students for analysis and explanations. Computer simulations are also an alternative method for investigations.

COVID-19 Considerations for Remote Learning

Safety is paramount. Plan for anything that could go wrong, especially if you are asking students to perform any investigation or activity at home, considering students may not have adult support or supervision.

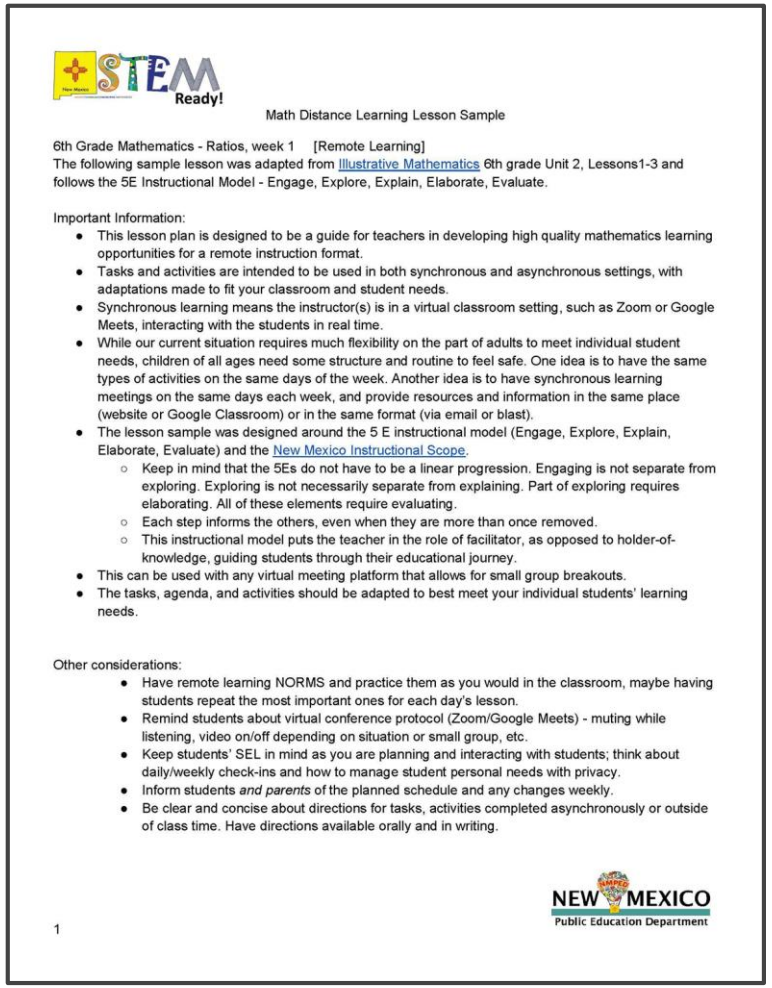
- Document safety expectations in all student materials and communicate to parents/guardians as guidance. Consider sending home a safety agreement for students and parents/guardians to sign. The National Science Teachers Association (NSTA) and Flinn Scientific have examples for all grade levels.
- Obtain permission from a parent/guardian before sending any materials home. Do not assume there will be adult supervision.
- Consider the guidance needed for students handling chemicals and living organisms such as plants and animals. Students may need eye protection, gloves, hand washing, and proper disposal. Keep in mind safety expectations for sharp objects, heated objects, and breakable items, student allergies, or sensitivities to items.
- It is not generally recommended to engage students in investigations remotely that require laboratory equipment, chemicals, or any materials that could cause students harm.
- The use of household chemicals should be limited to those that have a safety classification as non-hazardous according to Globally Harmonized System (GHS) classifications on Safety Data Sheets (SDS). To locate SDS, utilize Flinn Scientific's free database or search the Internet for "SDS <chemical name>." For detailed information about reading a Safety Data Sheet, visit the following websites:
  - Occupational Safety and Health Administration (OSHA) Hazard Communication Safety Data Sheets
  - American Chemical Society (ACS) Safety Data Sheets

Reentry Support Guidance NEW MEXICO Public Education Department

FOR MORE INFORMATION CONTACT: Yanira Vazquez ped.state.nm.us

Mathematics Planning Support

Math Distance Learning Sample Lesson



STEM Ready!

Math Distance Learning Lesson Sample

6th Grade Mathematics - Ratios, week 1 [Remote Learning]
The following sample lesson was adapted from Illustrative Mathematics 6th grade Unit 2, Lessons1-3 and follows the 5E Instructional Model - Engage, Explore, Explain, Elaborate, Evaluate.

Important Information:

- This lesson plan is designed to be a guide for teachers in developing high quality mathematics learning opportunities for a remote instruction format.
- Tasks and activities are intended to be used in both synchronous and asynchronous settings, with adaptations made to fit your classroom and student needs.
- Synchronous learning means the instructor(s) is in a virtual classroom setting, such as Zoom or Google Meets, interacting with the students in real time.
- While our current situation requires much flexibility on the part of adults to meet individual student needs, children of all ages need some structure and routine to feel safe. One idea is to have the same types of activities on the same days of the week. Another idea is to have synchronous learning meetings on the same days each week, and provide resources and information in the same place (website or Google Classroom) or in the same format (via email or blast).
- The lesson sample was designed around the 5 E instructional model (Engage, Explore, Explain, Elaborate, Evaluate) and the New Mexico Instructional Scope.
  - Keep in mind that the 5Es do not have to be a linear progression. Engaging is not separate from exploring. Exploring is not necessarily separate from explaining. Part of exploring requires elaborating. All of these elements require evaluating.
  - Each step informs the others, even when they are more than once removed.
  - This instructional model puts the teacher in the role of facilitator, as opposed to holder-of-knowledge, guiding students through their educational journey.
- This can be used with any virtual meeting platform that allows for small group breakouts.
- The tasks, agenda, and activities should be adapted to best meet your individual students' learning needs.

Other considerations:

- Have remote learning NORMS and practice them as you would in the classroom, maybe having students repeat the most important ones for each day's lesson.
- Remind students about virtual conference protocol (Zoom/Google Meets) - muting while listening, video on/off depending on situation or small group, etc.
- Keep students' SEL in mind as you are planning and interacting with students; think about daily/weekly check-ins and how to manage student personal needs with privacy.
- Inform students *and parents* of the planned schedule and any changes weekly.
- Be clear and concise about directions for tasks, activities completed asynchronously or outside of class time. Have directions available orally and in writing.

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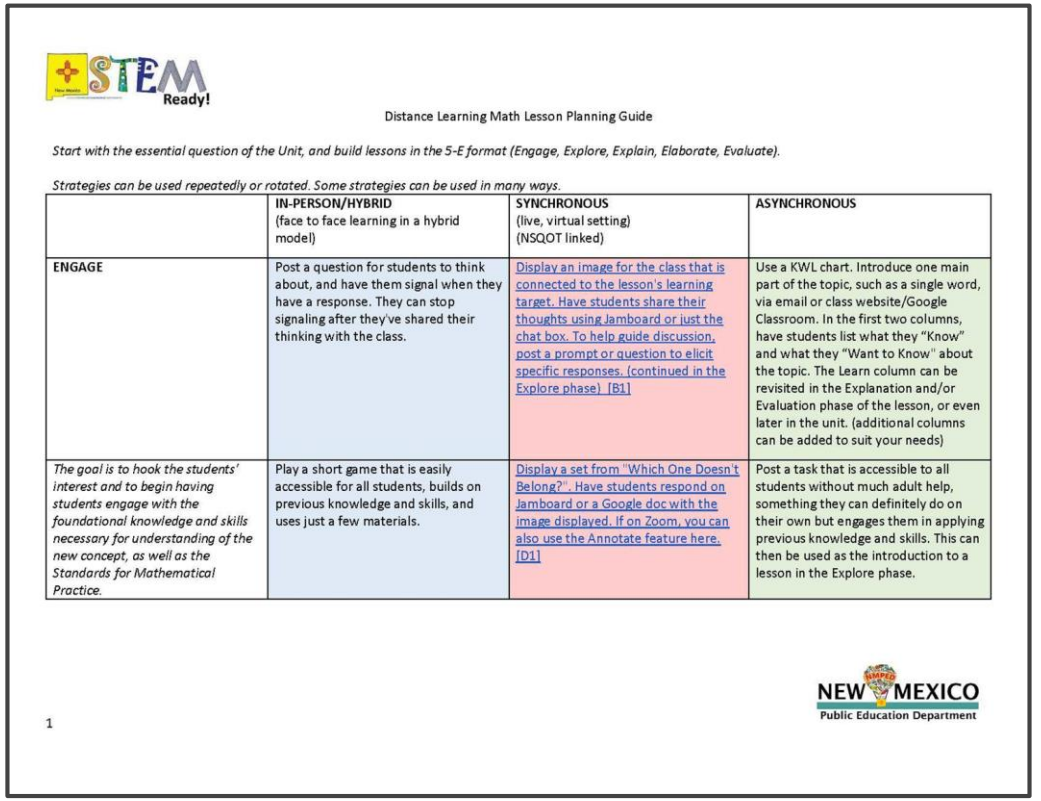
Math Lesson Planning Guide



STEM Ready!

Distance Learning Math Lesson Planning Guide

Start with the essential question of the Unit, and build lessons in the 5-E format (Engage, Explore, Explain, Elaborate, Evaluate).

Strategies can be used repeatedly or rotated. Some strategies can be used in many ways.

	IN-PERSON/HYBRID (face to face learning in a hybrid model)	SYNCHRONOUS (live, virtual setting) (NSQOT linked)	ASYNCHRONOUS
ENGAGE	Post a question for students to think about, and have them signal when they have a response. They can stop signaling after they've shared their thinking with the class.	Display an image for the class that is connected to the lesson's learning target. Have students share their thoughts using Jamboard or just the chat box. To help guide discussion, post a prompt or question to elicit specific responses. (continued in the Explore phase) [B1]	Use a KWL chart. Introduce one main part of the topic, such as a single word, via email or class website/Google Classroom. In the first two columns, have students list what they "Know" and what they "Want to Know" about the topic. The Learn column can be revisited in the Explanation and/or Evaluation phase of the lesson, or even later in the unit. (additional columns can be added to suit your needs)
The goal is to hook the students' interest and to begin having students engage with the foundational knowledge and skills necessary for understanding of the new concept, as well as the Standards for Mathematical Practice.	Play a short game that is easily accessible for all students, builds on previous knowledge and skills, and uses just a few materials.	Display a set from "Which One Doesn't Belong?". Have students respond on Jamboard or a Google doc with the image displayed. If on Zoom, you can also use the Annotate feature here. [D1]	Post a task that is accessible to all students without much adult help, something they can definitely do on their own but engages them in applying previous knowledge and skills. This can then be used as the introduction to a lesson in the Explore phase.

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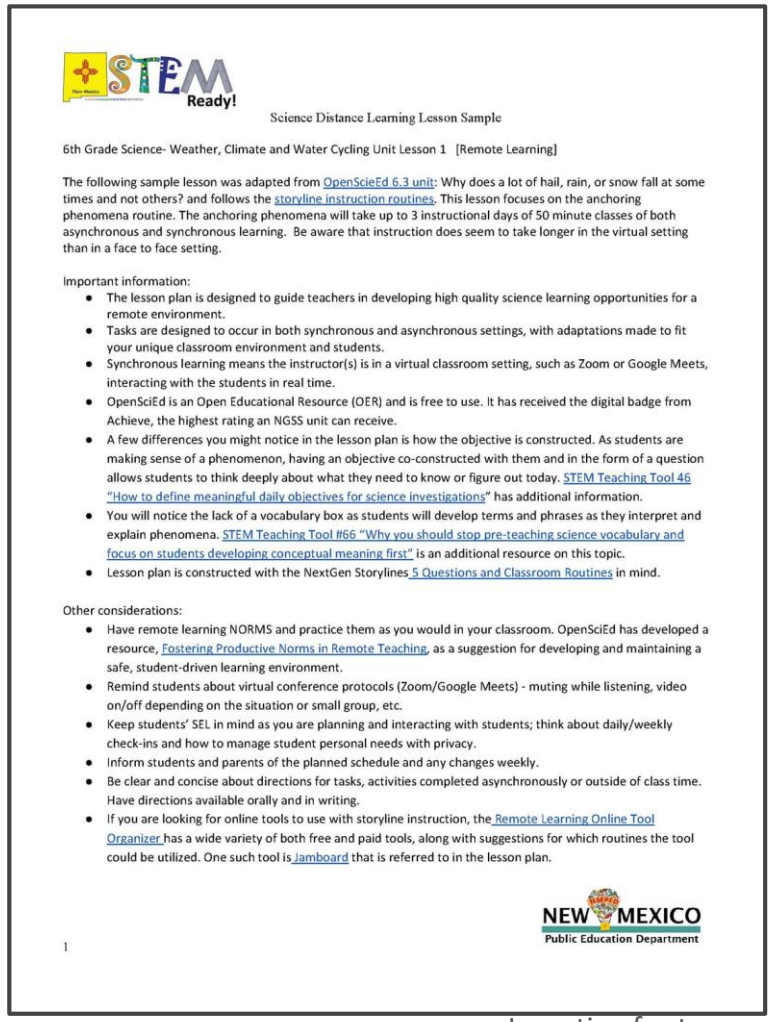
Science Planning Support

Science Distance Learning Sample Lesson



STEM Ready!

Science Distance Learning Lesson Sample

6th Grade Science- Weather, Climate and Water Cycling Unit Lesson 1 [Remote Learning]

The following sample lesson was adapted from OpenSciEd 6.3 unit: Why does a lot of hail, rain, or snow fall at some times and not others? and follows the storyline instruction routines. This lesson focuses on the anchoring phenomena routine. The anchoring phenomena will take up to 3 instructional days of 50 minute classes of both asynchronous and synchronous learning. Be aware that instruction does seem to take longer in the virtual setting than in a face to face setting.

Important information:

- The lesson plan is designed to guide teachers in developing high quality science learning opportunities for a remote environment.
- Tasks are designed to occur in both synchronous and asynchronous settings, with adaptations made to fit your unique classroom environment and students.
- Synchronous learning means the instructor(s) is in a virtual classroom setting, such as Zoom or Google Meets, interacting with the students in real time.
- OpenSciEd is an Open Educational Resource (OER) and is free to use. It has received the digital badge from Achieve, the highest rating an NGSS unit can receive.
- A few differences you might notice in the lesson plan is how the objective is constructed. As students are making sense of a phenomenon, having an objective co-constructed with them and in the form of a question allows students to think deeply about what they need to know or figure out today. STEM Teaching Tool 46 "How to define meaningful daily objectives for science investigations" has additional information.
- You will notice the lack of a vocabulary box as students will develop terms and phrases as they interpret and explain phenomena. STEM Teaching Tool #66 "Why you should stop pre-teaching science vocabulary and focus on students developing conceptual meaning first" is an additional resource on this topic.
- Lesson plan is constructed with the NextGen Storylines 5 Questions and Classroom Routines in mind.

Other considerations:

- Have remote learning NORMS and practice them as you would in your classroom. OpenSciEd has developed a resource, Fostering Productive Norms in Remote Teaching, as a suggestion for developing and maintaining a safe, student-driven learning environment.
- Remind students about virtual conference protocols (Zoom/Google Meets) - muting while listening, video on/off depending on the situation or small group, etc.
- Keep students' SEL in mind as you are planning and interacting with students; think about daily/weekly check-ins and how to manage student personal needs with privacy.
- Inform students and parents of the planned schedule and any changes weekly.
- Be clear and concise about directions for tasks, activities completed asynchronously or outside of class time. Have directions available orally and in writing.
- If you are looking for online tools to use with storyline instruction, the Remote Learning Online Tool Organizer has a wide variety of both free and paid tools, along with suggestions for which routines the tool could be utilized. One such tool is Jamboard that is referred to in the lesson plan.

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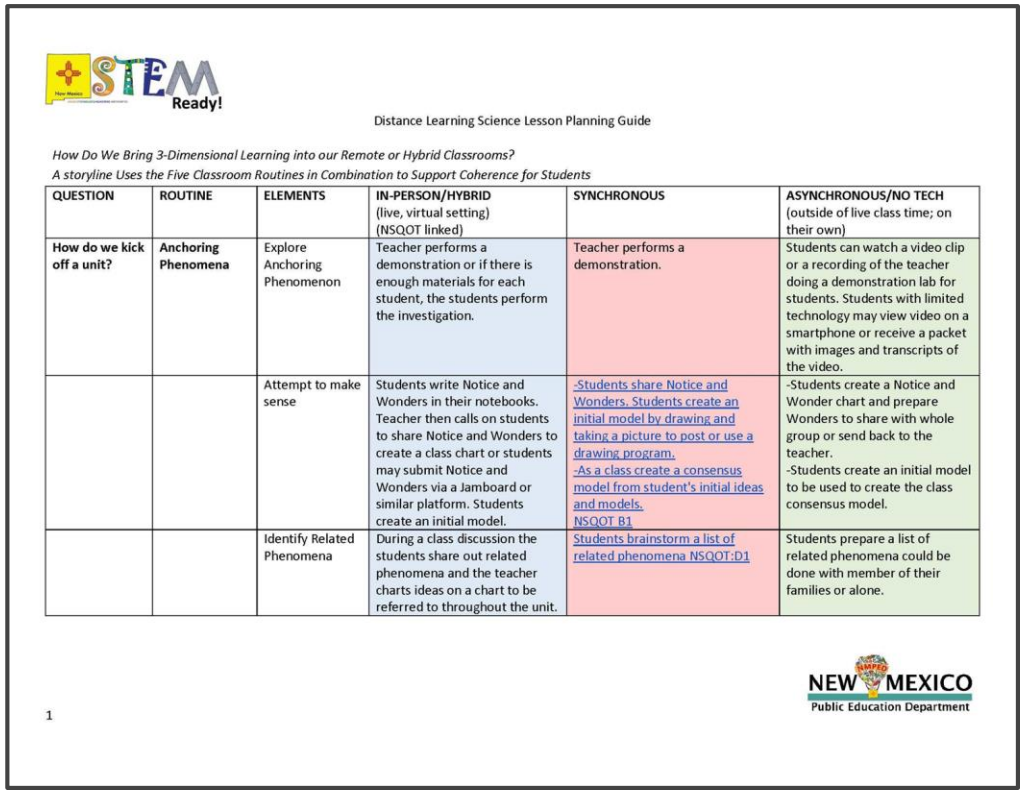
Science Lesson Planning Guide



STEM Ready!

Distance Learning Science Lesson Planning Guide

How Do We Bring 3-Dimensional Learning into our Remote or Hybrid Classrooms?

A storyline Uses the Five Classroom Routines in Combination to Support Coherence for Students

QUESTION	ROUTINE	ELEMENTS	IN-PERSON/HYBRID (live, virtual setting) (NSQOT linked)	SYNCHRONOUS	ASYNCHRONOUS/NO TECH (outside of live class time; on their own)
How do we kick off a unit?	**Anchoring Phenomena**	Explore Anchoring Phenomenon	Teacher performs a demonstration or if there is enough materials for each student, the students perform the investigation.	Teacher performs a demonstration.	Students can watch a video clip or a recording of the teacher doing a demonstration lab for students. Students with limited technology may view video on a smartphone or receive a packet with images and transcripts of the video.
		Attempt to make sense	Students write Notice and Wonders in their notebooks. Teacher then calls on students to share Notice and Wonders to create a class chart or students may submit Notice and Wonders via a Jamboard or similar platform. Students create an initial model.	-Students share Notice and Wonders. Students create an initial model by drawing and taking a picture to post or use a drawing program. -As a class create a consensus model from student's initial ideas and models. NSQOT B1	-Students create a Notice and Wonder chart and prepare Wonders to share with whole group or send back to the teacher. -Students create an initial model to be used to create the class consensus model.
		Identify Related Phenomena	During a class discussion the students share out related phenomena and the teacher charts ideas on a chart to be referred to throughout the unit.	Students brainstorm a list of related phenomena NSQOT:D1	Students prepare a list of related phenomena could be done with member of their families or alone.

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1

Notice and Wonder

Sample Math Planning Guide and Sample Lesson Plan

What did you notice?

What I am excited to see?

What do you wonder?

Sample Science Planning Guide and Sample Lesson Plan

What did you notice

What am I excited to see?

What did you wonder?

Re-entry Collaboration

5 minutes

How do all of these resources support lesson planning in all possible instructional models (remote, hybrid, face to face)?
What guidance would you like to see?

How do all of these resources support lesson planning in all possible instructional models (remote, hybrid, face to face)?

What guidance would you like to see?

Computer Science at the MSB

COMPUTER SCIENCE

Home / Offices and Programs / Math and Science Bureau / Computer Science

Below are a variety of resources to support educators and administrators in the implementation of the NM Computer Science Standards.

- BASICS OF NM COMPUTER SCIENCE STANDARDS
- COMPUTER SCIENCE MEMOS
- VIDEOS
- COMPUTER SCIENCE FUNDING IN NEW MEXICO

SCRIPT

The SCRIPT: Strategic CSforALL Planning Tool for School Districts

CS Fundamentals for Elementary Schools

CSTA

CS Standards

JUN 5 NM CS PD Week 2020

Public · Hosted by **Computer Science Alliance**

Reentry Guidance Professional Learning

ZEARN

Webinar Registration

CANVAS

Enroll in Science Reentry Support Series: Elementary Bundling of NM STEM Ready! Science Standards

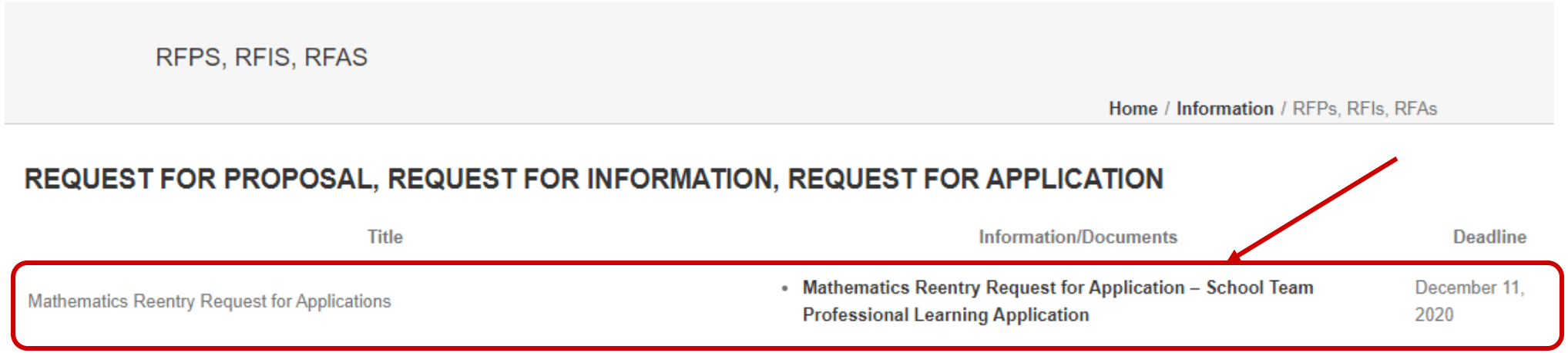
You are enrolling in **Science Reentry Support Series: Elementary Bundling of NM STEM Ready! Science Standards**.

canvas

Reentry Guidance - Office Hours

- **Elementary (K-6) -** next meeting Dec. 2 @ 3:00 - 3:30pm
- **Secondary (7-12)** - next meeting Dec. 9 @ 4:00 - 4:30pm
- **C & I directors** - to be determined…

Partnership Opportunities
Mathematics RfA



- HQIM with Canvas
- NMIS and learning acceleration
- Early Numeracy
- Effective formative assessment

Math Reentry Requests for Applications for K–12 NM Public Schools

School Application to Participate in Professional Learning in School Teams

The Math and Science Bureau (MSB) of the New Mexico Public Education Department (PED) is working to support PreK–12 mathematics instruction in public schools. The MSB invites New Mexico public schools to apply to participate in school team professional learning leveraging high quality instructional materials, pedagogy, and formative assessments to support mathematics re-entry.

What else can the MSB do to support STEM educators in your district?

Please respond to the poll.

Thank You!

Jenifer Hooten - Math Specialist

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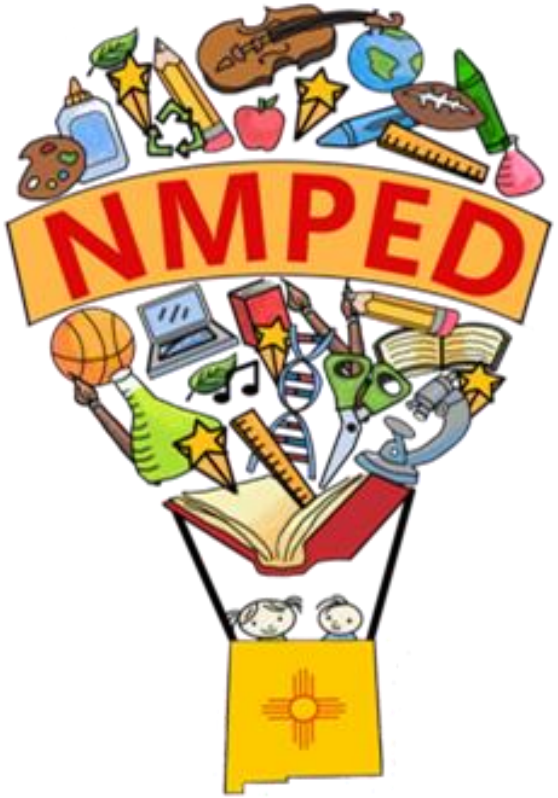
Christy Krenek - Science Specialist

Christy.Krenek@state.nm.us, 505-469-7673



Questions and Answers