

Multilingual Learner Support

At TPS Publishing we pride ourselves on providing engaging, inclusive and responsive materials for diverse bodies of students. We provide high-quality instruction which supports a well-rounded education inclusive of conceptual understanding of the topic, and the development of academic language.

There are three core components that form the steps to success:

1. Teacher and student project guides
2. Combined strategies STEAM lesson plans
3. STEM summative real-life projects

Each of these is underpinned with continual assessment, using online interactive, visual and tactile styles. These are available by skill level and by standard, using the mathematics and English journals to ensure students have every opportunity to master the content.



Students are given the opportunity to develop their mathematical abilities through active learning experiences, and thought provoking projects and tasks, that puts the responsibility on the students to investigate how they will best solve problems. Teachers are encouraged to set out the problems, and provide guidance and information only when necessary. Students should show perseverance, confidence and achievement in their learning. Teachers should work to guide student's ideas and guide them towards solutions and understanding of their own making.

TPS Publishing is an early adopter of the new California state requirements for multilingual learners. We understand that, across California, there are over 1.1 million multilingual learners. With this in mind, we have worked to ensure our materials meet the needs of this underserved group of learners, as well as aligning with the Framework's Five Components of Equitable and Engaging Teaching.

Multilingual learner is an asset-based approach which celebrates the abilities, experiences and knowledge that MLL students bring to a learning environment. Throughout our program we have embedded learning techniques, experiences and activities in order to foster a sense of community, and encourage the understanding that MLL students are competent doers of mathematics no matter what language/s they speak.

- Including languages other than English - utilizing such learning tools as cognates listings, language journals, open questioning, word walls with vocabulary and transition words, sentence frames and starters, collaborative workings and look-fors throughout the lessons. Each of these are examples of active learning in which students practice and apply skills; whether newly acquired or reinforcing previously learned concepts.



Charity Cupcakes
Language Goals

As part of the continual development of students' understanding of mathematical concepts, students need to develop correct mathematical terminology. Encourage students to express their understanding of new concepts using their own words and preferred phrases to describe observed phenomena. Work with dual language students, allowing them to use their first language to describe new concepts before working with students to use formal English terminology. When appropriate, introduce formal language to students.

Below is a table that gives some examples of formal language in use in this project, and some informal language that students may use in discussion and general conversation.

Formal Language	Informal Language
Addition	Put together
Subtraction	Take away
Multiplication	Count up in 2's, 3's, ...
Division	Splitting up
Language Fraction	Two halves fraction
Place Number	Whole number and fraction
Date	Calendar

⚠️ Alternate formal and informal subject-specific language; teachers should discuss with students the importance of inclusive language. Inclusive language is language that does not exclude, or discriminate against, any particular people or groups based on factors such as race, gender, ability, disability, socioeconomic status, etc.

Remember to create and maintain a word wall. Students can add the informal language to it so students have a daily reference. Once students have learned the formal language, encourage the informal language (times for two language students that they create the information in their first language) and then in English. You may wish to assign a partner, which can be another student who speaks the same first language, but is fluent in English, to assist.

Ask students to develop their Language Journal.

Take time often to review some of this vocabulary in a variety of languages. Do assess of students with a different first language to English.

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- Real-world materials - encouraging students to use real-world materials can be hugely beneficial. Real-world objects help to stimulate student curiosity and the use of their senses; engaging them in what they are learning. It also provides realistic context for learning; reducing associated anxiety, promoting engagement in learning, and providing familiar experiences. Teachers can incorporate culturally and linguistically responsive teaching in such activities as celebrating cultural holidays where students bring in celebratory materials from home, or using the At Home and in the Community activities found in each lesson plan.
- Diversity discussions - addressing diversity in the classroom is paramount to unlocking the full potential of all your students. You will have a wide range of individuals in your class from different backgrounds, situations, ethnicity, cultures, and abilities. Therefore, it makes sense that these students will all have slightly different requirements and needs in order to achieve their best. Social justice means children and adults from all identity groups have the same rights, opportunities, access to resources and benefits.
- Inclusive language and media - incorporating a mixture of languages into daily classroom life. This could be through labeling common items, environmental print, traditional stories from a variety of cultures, music by diverse artists. The languages included might reflect the students within the class or explore different languages. Teachers should also be aware of using inclusive language for LGBTQ+ students and steering away from gender-based language when discussing family structures and roles.
- Grouping students - by grouping students in ways that reflect the diversity of the classroom, teachers can help to promote skills of collaboration, communication, respect and acceptance; ultimately working toward the creation of global citizens.
- Student-led activities - our lesson plans all work toward student-led learning, promoting confidence, critical thinking, problem-solving and creativity. In particular, our arts projects and STEM projects, which provide conceptual learning using a visual and tactile approach with students following the DAPIC process. Students design, assess, plan, implement and communicate. TPS believe students learn best by doing. Students work in collaborative groups within each STEAM project to build projects aligned to real-life careers across industries and cultures.

In order to ensure we fully meet the needs of multilingual learners, and the requirements of the *California Curriculum Collaborative - Instructional Materials Serving MLLs*, we created the Mathematics, English and Combined Strategies Journals to work alongside our main lesson plans. These journals are designed to provide teachers and students with easy access to important information and materials required for development, assessment and reflection. Within the journals we have the following:

- Vocabulary - a list of vocabulary words with definitions from each Big Idea.

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How Does My Climate Compare?

Language Goals

Formal Language	Informal Language	Definition	Cognate
Media	Media		
Data	Information		
Estimate	Estimate		
Median	Half		
Mean	Average		
Measure of center	Average		
Measure of spread	Spread		
Median	Half		
Mean	Average		
Range	Span		

How students:

- say each word.
- write each word.
- say sentences using each word.
- write a sentence using each word.
- work with another student. Ask each other to spell each word. Check each other's answers.
- work with another student. Agree what each word means. Write the meaning of each.

Using this rubric, consider each student and their current understanding/ability.

Entry: I can say the new vocabulary words, and understand their meaning.

Developing: I can say and write the new vocabulary, and create sentences using each word.

Mastery: I can say and write the new vocabulary, and provide a definition. I can create a sentence using the words accurately.

Help Needed: I need help with _____

Teacher Edition Student Population

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How Does My Climate Compare?

Peer and Group Assessment Notes Page

How students consider the following:

- With my paired partner/group members I completed the task. Yes/No
- We found _____ easy.
- We found _____ difficult.
- We worked well together. Yes/No
- We did not work well together. Why not?
- We were respectful of one another. Yes/No
- If no, why not?
- Did the task inspire each of you to explore more?
- If no, why not?

Discuss and complete the reflection points:

- We understand how to plot data information onto a variety of visual representations such as box plots, dot plots or histograms.
- We understand how to research data and use it to calculate measures of center.
- We understand how to research data and use it to calculate measures of variability.
- We understand how to compare two data sets and compare measures of center.
- We understand how to compare two data sets and compare measures of variability.

Teacher Edition Student Population

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How Does My Climate Compare?

Self Assessment Reflection with Checklist:

Discuss your experience of this project:

- What did you find easy?
- What did you find difficult?
- Did you push yourself to achieve as best as you could?
- Did you respect each other's opinions and ideas?
- Are you inspired to explore the topics raised in this project further?

Complete this checklist:

I understand how to plot data information onto a variety of visual representations such as box plots, dot plots or histograms.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand how to research data and use it to calculate measures of center.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand how to research data and use it to calculate measures of variability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand how to compare two data sets and compare measures of center.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I understand how to compare two data sets and compare measures of variability.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Teacher Edition Student Population

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How Does My Climate Compare?

Big Idea Final Self Assessment

Teacher Instructions:

Deliver the content of these lessons. Work as a class. The content is written by standards to allow teachers to see where students have misconceptions, show mastery and/or need help. You will use these exit tickets, and then applications, for you to work through as a class. Once students have completed the content for each standard, have them complete this by standard exit page. You will need to discuss the application requirements from each skills lesson and then have students write on what they can do. Students should also consider any help they feel they need, and note this down too.

Teachers should take time to provide help using the content strategy before plan content. Teachers should also provide students with help to complete their notes, if needed.

Student Skills Lessons Big Idea 2 - Variable Populations

2.SP4 - Informally assess the degree of visual overlap of two numerical data distributions with similar variables, measuring the difference between the centers by representing it as a multiple of a measure of variability. (For example, do most heights of players on the basketball team differ by more than the mean height of players on the soccer team, about twice the variability (mean absolute deviation) or other trait, on a plot of the comparison between the two distributions of heights in meters.)

I can _____

I need help _____

My review notes _____

2.SP4 - Use measures of center and measures of variability for numerical data from random samples to draw informal comparative inferences about two populations. (For example, decide whether the weight of a certain brand of soap is generally lighter than the weight is a chapter of a fourth-grade novel.)

I can _____

I need help _____

My review notes _____

Teacher Edition Student Population

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- Language Goals - a table of formal and informal language used within each Big Idea, with space to add individual definitions and any associated cognate words. This page also contains a rubric for Entry/Developing/Mastery/Help Needed, which teachers can use with students to consider their current understanding and ability. **(Criterion 1, 2, 3 and 4)**
- Self Assessment Reflection with Checklist - a checklist of the Big Idea objectives; teachers and students can check the corresponding face which represents how the student feels about their understanding of the objective. **(Criterion 5)**
- Homework and Global Connection - convenient access to the Homework and Global Connection pages for each Big Idea. **(Criterion 4 and 5)**
- Peer and Group Assessment Notes Page - consideration points for how well peers and/or groups have worked together, and why. This page also includes discussion points for the Big Idea objectives; peer and group reflection of understanding. **(Criterion 4 and 5)**
- Achievements Notes Page - sentence frames for students to complete, which help them to consider their achievements, what they have learned, how they can use what they have learned in the future, etc. **(Criterion 1 and 3)**
- Environmental Principles and Concepts Notes Page - a table of the five Environmental Principles and Concepts students and teachers can use to consider their understanding and experiences of each principle.
- Performance Tasks Notes - space for teachers to record any notes they may have for the STEM, Arts and Performance Task sections.
- Big Idea Final Self Assessment - these pages have space for teachers to work with students to consider what the student can do, what they need help with, and any other notes. There is space to complete this for each standard included in the specific Big Idea lesson. **(Criterion 2 and 3)**
- In the Combined Strategies Journals, students are provided with the write on pages to provide their answers to the content in Step 2 of the TPS program.

Throughout our program we provide opportunity for assessment; continual, formative and summative. We integrate such assessment techniques as peer- and self-assessment, use of rubrics, real-time feedback, questioning, evidence of works, among many others. We encourage teachers to differentiate criteria for subject and language learning; helping to keep focus on what is being assessed at that time. We also have many assessment tools available: assessment database, interactive assessment tool, interactive homework system and intervention focus tutorial.

We hope you enjoy our program, and benefit extensively from how we have intentionally embedded teaching and learning techniques and experiences in order to support multilingual learners alongside the wide range of individuals from different backgrounds, situations, ethnicity, cultures and abilities within your learning environment.

