VIRGINIA DEPARTMENT OF EDUCATION

# Science Instructional Enhancements for Diverse Learners

## *Make science* learning visible

* Establish content and connected language targets to support students in comparing, sequencing, justifying, explaining their thinking, etc.
* Provide multiple ways, including graphs, tables, and illustrations, for students to communicate their thinking
* Use graphic organizers such as mind maps and Venn Diagrams to help students connect their ideas
* Draw attention to patterns and relationships in graphs, tables, and other visualizations
* Refer to student-generated word walls and skill anchor charts to support language development and understanding of science concepts and practices
* Employ multiple representations of concepts and allow for opportunities for students to develop and/or interpret models
* Use (and encourage students to use) motion to support understanding and retention of new concepts and key terms
* Post visual displays to cue memory and support written language
* Encourage students to represent their thinking with pictorial representations and other type of models

## Use cooperative learning structures and strategies

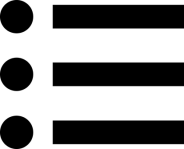
* Structure opportunities for students to collaborate and communicate ideas and make meaning
* Use strategies to support student engagement and science disciplinary discourse
* Use flexible and fluid grouping of students

## Support the language of science

All students can learn! High expectations, asset-based thinking, and growth mindsets are key to student success!

* Provide real-world contexts for students to build scientific vocabulary and conceptual understanding
* Explicitly teach the language of science beyond a focus on vocabulary to support conceptual understanding
* Provide sentence starters to support student communication of scientific strategies, processes, and thinking

## Reduce cognitive load and allow processing time

* Break tasks and prompts into smaller sections and organize the text using bullet points versus complex paragraphs.
* Read tasks and texts out loud
* Use simple sentences and include only details needed to complete the task
* Reduce number of questions that address same skill or concept
* Reduce visual clutter
* Provide adequate thinking and processing time
* Provide flexible time frames for completing tasks

## Connect learning to students’ backgrounds and skills

* Make connections between science concepts and everyday life
* Craft tasks and prompts that connect with students’ lives and responsibilities
* Highlight scientific contributions and innovations from a variety of different cultures
* Facilitate opportunities for scientific processes or thinking to be explained in student’s home language

*High expectations, asset-based thinking, and a growth mindset are key to student success!*

*Virginia Department of Education 2020*