**Frequently Asked Questions Regarding Desmos Calculators and Special Education**

# Desmos Calculators and Instruction:

**How are Desmos calculators being implemented in Virginia Classrooms?**

Beginning in the 2022-2023 school year, students will only use the Desmos Virginia Calculator within TestNav during an online growth assessment or SOL test. Hand-held calculators will only be used by students completing a paper test or by students with disabilities who have an IEP or 504 accommodation that requires the use of a hand-held calculator. For questions regarding other scenarios where a student might use a hand-held calculator, contact your Division Director of Testing.

**What are the benefits of Desmos calculators for students with disabilities?**

The Desmos calculators have many features that are particularly beneficial to students with disabilities. The multi-line display of the four-function and scientific calculators are beneficial to students in solving multistep problems. The Desmos graphing calculator serves as both a calculator and an instructional tool to promote inquiry, conceptual understanding, and mathematical discourse. Its multiple visual representations, colorful graphs, and ability to animate changes with sliders assist students with making connections between mathematical ideas. The various features of the Desmos calculators, along with the ease of use, afford students more opportunities for success in mathematics.

The [Standard Desmos Calculators](https://www.desmos.com/), as well as the [Desmos Virginia Calculators](https://www.desmos.com/testing/virginia), can be accessed online with a computer or tablet. In addition, apps that allow users to access the calculator without using Wi-Fi or data are available at no cost for both the Standard Desmos Calculators and Desmos Virginia Calculators. For specific information on how the Desmos Virginia Calculators differ from the Standard Desmos Calculators refer to the [Desmos Virginia Information document.](https://www.desmos.com/state-pdfs/VA_Desmos_Calculators.pdf)

**How can educators support students with disabilities with the use of Desmos calculators?**

Special Educators, as well as general educators, need to be knowledgeable about the functionality of the Desmos calculators in order to provide specially designed instruction to their students. Educators are encouraged to view the [VDOE recorded Desmos webinars](https://www.doe.virginia.gov/teaching-learning-assessment/instruction/mathematics/standards-of-learning-for-mathematics/desmos-online-calculator) to assist them in becoming more familiar with the specific features of the Desmos calculators and how they can be used to support instruction. These webinars include the “basics” of the scientific and graphing calculator, as well as webinars addressing more in-depth content. Additional webinars showing how to utilize the [Desmos Activity Builder](https://teacher.desmos.com) are also included. Desmos also provides many [free online tutorials and resources](http://learn.desmos.com/) for teachers, students, families and caregivers.

Specially designed instruction targeting the use of the Desmos calculators will vary according to individual student needs. Some examples of specially designed instruction that a special or general educator may provide could include modeling and explicit instruction on the use of the calculator functions and accessibility features; teaching students how to use visuals such as checklists and graphic organizers for calculator functions and accessibility features; and providing scaffolded feedback (i.e., most to least prompts) and repetitive practice with feedback on calculator methods. Additionally, it is important to note that student use of calculators should be balanced with the development of computational fluency.

Additionally, teachers are encouraged to utilize the VDOE [Mathematics Practice Items](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/sol-practice-items-all-subjects) available in the TestNav online test delivery software. These items provide access to the Desmos Virginia Calculators and students can be shown how to navigate between the testing screen and embedded Desmos calculator screen.

## Desmos and Accessibility:

**What accessibility features are available in the Desmos Virginia Calculators for students with disabilities?**

The [Desmos accessibility features](https://www.desmos.com/accessibility) work within the Desmos Virginia Calculators. Procedures for using accessibility features during Standards of Learning (SOL) assessments will be communicated through Division Directors of Testing.

For students with visual impairments, experienced users of screen readers will have the most success using the screen reader available in Desmos. Desmos provides [set-up support](https://www.desmos.com/accessibility#setup) for built-in and the most popular screen readers.

If a student has an audio accommodation, they will also have access to the audio version of the Desmos Virginia graphing calculator. This feature is not currently available within the Desmos Virginia 4-function and scientific calculators.

## Desmos and Standards of Learning (SOL) Testing:

**During instruction and SOL testing, are the ease of access settings on a student’s computer available to use with Desmos (will Desmos respond to individual computer settings)?**

The "Ease of Access" settings are available to use with Desmos Virginia calculators; however, these settings will not work with the Desmos Virginia calculators that are available during an SOL test in the TestNav application: Text Cursor Indicator and Text Cursor Thickness. If a student were to need this accommodation, it should be submitted to the Office of Student Assessment as a [Special Assessment Accommodation Request.](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/participation-inclusion)

**If a student is taking a paper version of a Mathematics (2016 SOL) Test, is it possible to use a Desmos calculator during that test?**

Yes, a student may be given access to the appropriate Desmos Virginia Calculator when completing a paper version of the Mathematics (2016 SOL) Test. The school division should follow the procedures outlined in the [SOL Test Implementation Manual](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/sol-test-administration-development) to provide access to a Desmos Virginia Calculator during a paper Mathematics (2016 SOL) Test.

**Some students may require the Desmos Virginia Calculator to be displayed on a different device than the testing computer (e.g., using a separate, larger device to access a larger version of the calculator). Is this an option during SOL testing?**

Yes. Any student requiring the Desmos Virginia Calculator to be displayed on a second device for the SOL test administration would follow the procedures outlined in the [SOL Test Implementation Manual](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/sol-test-administration-development).

**Is it necessary to complete the Calculator Accommodation Criteria Form and a Special Accommodation Request Form for a student to be able to use Desmos on the non-calculator portion/items of the SOL test?**

The IEP team or 504 Plan committee must first use the [Calculator Accommodation Criteria Form](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/participation-inclusion) to determine that the student is eligible to use the Desmos Virginia Calculator or any other calculator on the non-calculator part/items of the SOL test. If through completing this form, it is determined that the student will use the Desmos Virginia Calculator during the non-calculator part/items of the SOL test, it is not necessary to complete a Special Accommodation Request Form to provide that specific accommodation. Procedures for how to provide the Desmos Virginia Calculator during the non-calculator part/items of the SOL test are provided in the [SOL Test Implementation Manual](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/sol-test-administration-development).

**If a student has been determined eligible to use Desmos on the non-calculator section/items of the SOL test, how will the student access the Desmos Virginia Calculator during that portion of the test?**

For Fall and Winter 2022-2023 Growth Assessments:

The student should use either the appropriate

• Desmos Virginia calculator on a separate device logged into the Training Center; or

• hand-held calculator from the approved list, [Approved Calculators for the Virginia Standards of Learning Assessments](https://www.doe.virginia.gov/teaching-learning-assessment/student-assessment/virginia-sol-assessment-program/sol-test-administration-development).

For Fall 2022 and Spring 2023 SOL tests:

New functionality will be added to the mathematics tests beginning with the Fall 2022 SOL test administration that will enable schools to code tests for those students who require the calculator on non-calculator items so that the appropriate Desmos Virginia calculator will appear on the toolbar in TestNav for the entire test for the student. Training will be provided for Division Directors of Testing on this new functionality prior to the Fall 2022 SOL test administration.