Assessment
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About this booklet

Getting Started with TI Assessment is designed to give an overview of the ways TI graphing technology can be used to perform ongoing, informal assessment as well as the more formal periodic assessment you may do. In addition, it covers specific products and tools that allow you to perform these assessments.

For more information on items mentioned in this book, please visit education.ti.com/us/assessment

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Texas Instruments’ focus on assessment is to improve student understanding and assist the teacher in better understanding their students’ mastery of topics.

This focus on the classroom includes using assessment for the following:

- **Using Assessment to Gauge Student Readiness**
  Making sure students are ready for a test, whether an end-of-chapter test or state exam, is vital for student success. TI assessment solutions allow teachers to use informal and formal questioning to check for student understanding and readiness.

- **Reporting Student Progress**
  Being able to look back at student progress and analyze trends is critical when it comes to preparing future instruction for students. Our solutions help the teacher see results of time and view these trends.

- **Assessment Integration with Instruction**
  It is important that assessment be integrated with day-to-day instruction. But assessment is more than just questioning. Find out more about the tools that allow assessment to be integrated with activities you typically do in the classroom.

- **Self-Assessment for Students**
  A great benefit of our self-assessment tools is that it allows students to monitor their own progress and take responsibility for their own learning.

Texas Instruments has three types of assessment solutions for the classroom — Teacher Tools, Student Self-Assessment Tools, and High-Stakes Testing Support.

**Teacher Tools**

The TI-Navigator™ System is an assessment Teacher Tool. With this system, teachers are able create a wireless network with the students’ graphing calculators. There are several components of TI-Navigator that are appropriate to use for assessment.

- **LearningCheck™ Creator:**
  This allows teachers to easily create questions and assignments for students to complete. The questions can be sent as a complete assignment, or as individual Quick Poll questions. Pre-created LearningCheck files can be found on the TI Activities Exchange website [education.ti.com/exchange](http://education.ti.com/exchange) and with several textbook publisher resources. (See page 7.)

- **Class Analysis and Item Portfolio:**
  Once students have completed a LearningCheck assignment, the teacher can use Class Analysis to collect and auto-grade the results. (See page 8.)

- **Activity Center:**
  The Activity Center is a great place to informally test student understanding. Teachers can create classroom activities where they instantly receive student input, thus quickly and easily seeing who does not understand the concept being taught. (See page 10.)
Screen Capture:
Screen Capture is not just for monitoring what students are doing. It is also a great way to create class discussion on concepts and ensure students are getting it. (See page 9.)

Quick Poll:
Instead of getting answers from just a few students who raise their hand, Quick Poll allows you to send a question to the entire class and see all of their responses. (See page 9.)

Student Self-Assessment Tools
Allowing students to monitor their own progress outside of class is a great way to get students involved with their own learning. Texas Instruments has two tools to aid in student self assessment: StudyCards™ and LearningCheck™. (See page 11.)

StudyCards™ App:
Students can create their own electronic ‘flash-cards’ to help review concepts and ideas.

LearningCheck™ App:
Teachers can create assignments to be sent to students in self-check mode. This will allow the student to complete the same assessment as they would in class, but be able to check their answer on their own graphing calculator.

High-Stakes Testing Support
Ensuring that all students have the same opportunity to succeed is critical when conducting formal assessments. Texas Instruments has created several solutions to help teachers prepare and conduct high-stakes testing.

National assessments:
Many national assessments include graphing calculators in their approved resources for test taking. Texas Instruments offers free test prep questions to help students prepare for national exams. (See page 4.)

Testing tools:
Two tools are available to prepare student graphing calculators for high-stakes tests. TI TestGuard™ 2.0 allows teachers to either clear or disable* programs and applications and delete other data stored on students’ calculators. In addition, all new TI-84 Plus and TI-84 Plus Silver Edition calculators with OS 2.40 or higher have a special key sequence, called Press-to-Test, that teachers can use to prepare a student calculator for exams where applications, programs, and other files are not allowed. (See page 5.)

Question sets and practice exams:
Texas Instruments is committed to providing students with the support they need to do well on required math and science exams.

* The disable feature works only on student TI-84 Plus calculators with OS version 2.40 or higher. If TI TestGuard 2.0 is set up to disable programs and/or applications and the student has a TI-83 Plus or a TI-84 Plus with an earlier OS, the programs and/or applications will be deleted instead, with a configuration comparable to what was specified.
Many national assessments include graphing calculators in their approved resources for test-taking. The following testing agencies recommend, permit, require, or expect students to use graphing calculators on tests. For the latest list of approved calculator or calculator features, please visit the individual testing web site.

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| PSAT/NMSQT™ and SAT™ Program               | • A graphing calculator is recommended for use on the PSAT/NMSQT™ and SAT Reasoning TEST™.  
• A graphing calculator is permitted for use on the SAT Subject Tests™: Math Level 1 and Math Level 2. | TI-73 Explorer™  
TI-83  
TI-83 Plus  
TI-83 Plus Silver Edition  
TI-84 Plus  
TI-84 Plus Silver Edition  
TI-89 Titanium | For more information, download the College Board Calculator Policies (CBCalculatorPolicies2005.pdf) from the College Board Web Site:  
www.collegeboard.com |
| Advanced Placement Program™ (AP™)          | • A graphing calculator is required for use on the AP Calculus AB and BC exams.  
• A graphing calculator with statistics capabilities is expected for use on the AP Statistics exam.  
• A graphing calculator is permitted for use on the AP Chemistry and AP Physics exams. | TI-73 Explorer™  
TI-83  
TI-83 Plus  
TI-83 Plus Silver Edition  
TI-84 Plus  
TI-84 Plus Silver Edition  
TI-86  
TI-89 Titanium | For more information, visit AP Central™ at the AP Central Collegeboard Web Site:  
apcentral.collegeboard.com |
| ACT Testing                                | • A graphing calculator is permitted for use on the ACT Assessment® exam. | TI-83  
TI-83 Plus  
TI-83 Plus Silver Edition  
TI-84 Plus  
TI-84 Plus Silver Edition  
TI-86 | For more information, visit:  
ACT Assessment® website:  
www.act.org/aap |

* Some older and/or discontinued products may also be allowed. Please confirm with the testing organization for the latest information.

** PSAT/NMSQT/SAT/Advanced Placement Program/AP/College Board are registered trademarks of the College Entrance Examination Board, which was not involved in the production or development of TI products.
TI TestGuard™ 2.0 App for the TI-83/TI-84 Plus Families

The TestGuard 2.0 App allows teachers to either delete or disable* programs and applications and delete other data stored on students’ calculators (TI-83/TI-84 Plus family only). It works by loading TestGuard 2.0 on the teacher’s calculator and simply attaching an I/O unit-to-unit (not USB) cable between the teacher and student calculators. TestGuard 2.0 running on any TI-83 Plus or TI-84 Plus teacher’s calculator can clear any student TI-83 Plus or TI-84 Plus, and can disable any student TI-84 Plus with OS 2.40 or greater.

How to use the TestGuard 2.0 App:

1. On the teacher’s TI-83/TI-84 Plus, press the `APPS` key. Use the arrows to move to TestGrd2 in the list of Apps.

   If you do not have TestGuard 2.0, please contact TI customer support for help obtaining and downloading this App. (See page 32.)

2. From the main screen, select 1. Setup Calcs to set your options.

3. Line 1 allows you to select **Delete** or **Disable**. To change this option, use the arrow keys to highlight your choice, then press `ENTER` to change the setting. Follow the same procedure for each line.

   Press [OK] (`ZOOM`) when you have finished changing settings.

4. Connect your calculator to a student’s calculator then select 2: Start Transfer.

   After you receive the confirmation code, and see the confirmation code on the student’s calculator, disconnect the first calculator and proceed to the next calculator. Continue until you have set all calculators.

**NOTES:**

*If you use TestGuard 2.0 to set up a TI-84 Plus without OS 2.40 or higher, or a TI-83 Plus, the “Disable” option will “Delete” instead (based on the configuration you established in TestGuard 2.0).

You must be an educator to get this App. Contact TI customer support at ti-cares@ti.com or 1-800-TI-CARES for information on how to obtain TestGuard 2.0.

For classrooms using the TI-83 or the TI-89, TestGuard 1.0 is available.
Press-to-Test

All new TI-84 Plus and TI-84 Plus Silver Edition calculators with OS 2.40 or higher have a special key sequence that teachers can use to prepare a student calculator for exams where flash applications, programs, and other files are not allowed. This feature is called Press-to-Test, and it is similar to the 2nd-MEM-Reset option which deletes all files from the calculator before an exam. The main difference between resetting memory and using Press-to-Test is that Apps and programs are only temporarily disabled, instead of deleted, while other files (including lists, variables, equations, etc) are still deleted. After the exam, applications and programs can be restored easily for classroom use.

Please check with your district or state to see if the “Press-to-Test” approach is approved for a specific exam.

All TI-84 Plus and TI-84 Plus Silver Editions can be upgraded, for free, by downloading the operating system from the TI web site. Please visit education.ti.com/latest to find the latest OS.

Directions:

1. With the TI-84 Plus turned off, press and hold down both the LEFT and RIGHT arrow/cursor keys, and press ON (all three keys must be pressed at the same time).

   The Reset Options screen displays. By default, the angle mode is set to Degree, and Stat Diagnostics are On.

2. Change these settings, if you wish, and then press OK (OK). The Reset Complete screen displays the options you have selected.

   Press any key to continue.

3. Student calculators disabled using the Press-to-Test method can be re-enabled using TestGuard 2.0, or by successfully linking any file to or from the disabled TI-84 Plus.

   The disable feature works only on TI-84 Plus calculators with OS version 2.40 or higher.

   To re-enable a disabled TI-84 Plus calculator you can:
   • Successfully link any file to or from a disabled calculator
   • Download a file to the disabled calculator from a computer
   • Send a file to the disabled calculator using the TI-Navigator™ System
   • Use the “Re-Enable” option in the TI TestGuard 2.0 App
Assessment with the TI-Navigator™ System

Assessment is more that just questioning, and the TI-Navigator System allows teachers to perform assessments that range from informal checking of students understanding to formal reporting of student performance. The following are key features that assist the teacher with assessment for the whole classroom.

**LearningCheck™ Creator and App**
With LearningCheck Creator, teachers can easily create or recruit items for use with their students. Here are just some of the ways the teacher can use LearningCheck for assessment. See page 11 for more information on the LearningCheck App.

**Easily create assignments:**
Create assignments that contain items from multiple choice to fill-in-the-blank to open response. The items can be saved with topics and keywords that teachers create, making it easy to create their own structure for searching.

**Search your item bank to create assignments:**
Teachers don’t always have time to create new questions, so why not search from their item bank? With so many free items available from the TI Activities Exchange site, popular textbooks, and fellow teachers, it is a snap to download new items and add them to your own item bank. Then just pick questions based on keyword and topic to use for assessment.

**Send assignments in examination or self-mode:**
Being able to send teacher-created assignment to students makes homework and quick quizzes a snap. Teachers can choose to send in examination mode, where the teacher collects and reviews the results, or in self-check mode, where the students can check to see if they got the answers right.

**Send item as Quick Poll:**
When time is of the essence, this feature allows the teacher to instantly send an individual item as a quick question. Students can answer the question and the results are automatically collected and displayed by the teacher.
Class Analysis
With Class Analysis, teachers can view detailed responses from their students LearningCheck™ and Quick Poll assignments.

Automatically grade LearningCheck assignments:
Collect LearningCheck assignments directly from the class and have them automatically graded. This saves time and allows teachers to focus on understanding student misconceptions.

Show slide show of student results:
Results from class assignments are not only great for the teacher to view, but can be a great discussion starter with students. Show a slide-show of results to promote discussion of concepts, different ideas, and unique solutions.

Student Portfolio
With Student Portfolio, the teacher can view a history of all saved Class Analysis Assignments and class screen shots. This allows teachers to be able to spot trends easier than before.

View history of all assignments received from class:
Simply save the Class Analysis and Quick Poll history files to the Student Portfolio and all the assignment and student results are in one easy view. View both class average and individual results to quickly spot trends.

View snapshots of student work:
The Student Portfolio also allows teachers to use saved class screenshots for review. Track student progress and comprehension by looking at student results, whether it’s a geometry figure, graph, or data and regression.
Quick Poll

With Quick Poll, teachers can quickly poll the entire class to check their understanding or to generate discussion.

Ensure participation from whole class:
Receive responses from the whole class, not just the students that always raise their hand. Teachers can send quick polls out to the entire class and the students answer on their graphing calculators.

Use Open Response for more open discussion:
Using Open Response allows for students to answer in their own words. The teacher can bin the results based on numerical value, or by text to generate discussion and better understand students' progress.

Save results:
If a teacher is only looking to get a quick insight into their students' progress, they may not keep Quick Poll results. However, sometimes a teacher will want to save polls for later review, or to be able to show the progress their class is making.

Screen Capture

Screen Capture allows teachers to easily view screens from individuals or the entire class.

View class progress on a concept:
Teachers can use Screen Capture to not just monitor student progress and check on student's exploration of a concept, but as a means to promote class discussion.

Save results for later review:
Teachers can save the class screen captures and post them to the Student Portfolio. This allows the teacher to have a record of student understanding.
Activity Center
With Activity Center, teachers are able to create activities to not only teach a concept, but to assess student understanding of that concept as well.

View all student work at once:
Rather than working individually or in small groups, it is sometimes more beneficial when the whole class can participate in an activity. This allows the teacher to see if everyone understands the concept, and to take advantage of the classroom dynamic.

Check for understanding:
In this example, students submit equations to fit a set of data. Using the student responses, the teacher can instantly see if they understand the concept.

In this example, students submit lists. Now the teacher can easily view the results of data collection experiments. The teacher can highlight an individual student’s work to check on their conclusions.

This screen shows how the teacher can check students’ understanding of the relationship between percentages, fractions, and decimals in the Middle Grades Visual Fractions Activity. This interactive activity involves the whole class and teachers can use it as an introduction to a lesson, or as a way to test student understanding.
LearningCheck™ Application

The LearningCheck App for the TI-73 Explorer™, TI-83 Plus, TI-83 Plus Silver Edition, TI-84 Plus, and TI-84 Plus Silver Edition Graphing Calculators allows you to expand the capabilities of your classroom technology through:

- viewing assignments, including text and images (for self-check or more formal grading)
- recording answers to assignments (in combination with the TI-Navigator™ System)
- creating and using electronic response forms
- performing self-check on understanding of material

Many TI-83/TI-84 Plus Family graphing calculators come with the LearningCheck App installed. You can also download the LearningCheck App for free from http://education.ti.com/latest.

If you are using the TI-73 Explorer, please contact our customer support team to request this App. (See page 32.)

Once you have an assignment loaded on your graphing calculator, here are steps to view an assignment and navigate through the LearningCheck App. For instructions on downloading files, see page 27.

Viewing a LearningCheck Assignment on the TI-73 Explorer, TI-83 Plus, or TI-84 Plus*

1. Press the [APPS] key, scroll down to “LearnChk” and press [ENTER].

When the information screen appears, press any key to move on.

Now you will see the assignment list.

2. Use the arrows to select an assignment and press [ENTER].

3. Once you enter an assignment, it will ask for a Username for file security. (Entering an incorrect Username will erase previous answers.)

You will automatically be in ALPHA lock in order to type a name.

4. After you enter a name and press [ENTER], you will see the list of questions in that assignment. You can start with question 1, or use the arrows to move to different questions.

Press [ENTER] to open a question. To move among answer options, use the up and down arrows. To select an answer, press [ENTER]. Press the [GRAPH] key (NEXT) to move to the next question.

*For customers using the TI-89, LearningCheck 1.0 is available.

Getting Started with TI Assessment
5. To return to the Item List, press (MENU) and select **3: Item List**.

6. If the assignment was a “self assessment,” then the student can view results by pressing **(TRACE)**. They will receive either a positive response or "incorrect." For incorrect, they have the option to try again. This gives students an opportunity to study similar questions to those they may see on upcoming tests.

**LearningCheck™ Creator Software**

With the LearningCheck Creator software, you can easily create self-check opportunities by sending out review questions, practice tests, and more with this great new tool that expands the capabilities of your classroom technology.

Users of the TI-Navigator™ classroom learning system can easily incorporate LearningCheck™ to experience real-time transfers between teacher and students. You can send assignments to student calculators, and then upload their finished material to your PC for grading and evaluation.

For more information on how to use LearningCheck with the TI-Navigator System, see page 7.
To download the LearningCheck Creator software, visit [http://education.ti.com/latest](http://education.ti.com/latest)
StudyCards™ Application
The StudyCards App allows teachers and students to create electronic flash cards to use as a study tool for quiz or test review. Students can also download prepared flash cards on many topics onto their graphing calculator. Many TI-83 Plus and TI-84 Plus calculators come loaded with the StudyCards App. To download the App, visit http://education.ti.com/latest and select your calculator model.

Viewing a StudyCard Assignment on the TI-73 Explorer™, TI-83 Plus, or TI-84 Plus*
1. Press the [APPS] key, scroll down to StudyCrd and press [ENTER].

When the information screen appears, press any key to move on.

Now you will see the Main Menu where you can select which set of cards you would like to view.

2. Select either “Choose new stack” or “Use current” to open a set of cards.

If you choose “Choose new stack” you will see a list of files you can open. Move the highlighted box to the file you wish to open and press [ENTER].

3. Once you open a set of cards, you will see options along the bottom of the screen including “Menu”, “Choice?”, “Flip”, “Stat”, and blinking arrows. Use the physical key directly below the screen to make a selection.

4. Move forward and backward through the cards until you feel you know the materials.

The menu choices mentioned in Step 3 above operate as follows:
Menu – takes you to the main menu where you can open a different file, exit the app, and so on.
Choice? – allows you to enter your choice selection (if the card has this set up) and stores your answer for summary at the end of the stack.
Flip – allows you to see the back side of the card (i.e. the answer).
Stat – shows you how well you are performing based on your input for Choice? above.
Arrows – indicate which arrow keys are needed (often the left arrow and right arrow are blinking). Pressing them allows you to navigate forward and backward in the stack.

For more information on the StudyCard App or to download the full guidebook, please visit http://education.ti.com/studycards

* For customers using the TI-89, StudyCard 1.0 is available.
**StudyCards™ Creator Software**

The StudyCards™ Creator is a PC software program that teachers and students use to create stacks of electronic flash cards that can be viewed on the TI-73 Explorer™, TI-83 Plus, and TI-84 Plus family of graphing calculators with the StudyCards App above.

The TI StudyCards Creator software allows you to expand your TI graphing calculator for use in any subject! You can create stacks of electronic flashcards for each of your classes. This easy-to-use PC software allows you to create the StudyCards stack that you need.

Individual cards can contain text and images (bitmaps and calculator screen shots). The StudyCards™ Creator gives you the flexibility to create different types of cards:

<table>
<thead>
<tr>
<th>Stack Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Check</td>
<td>User determines if the correct answer is given.</td>
</tr>
<tr>
<td>Self-Check with Levels</td>
<td>Levels of difficulty are assigned to each card. User determines if the correct answer is given.</td>
</tr>
<tr>
<td>Multiple Choice</td>
<td>Each card lists possible answers from which to choose. The StudyCards Viewer determines if the correct answer is given.</td>
</tr>
<tr>
<td>Multiple Choice with Levels</td>
<td>Each card lists possible answers from which to choose. Levels of difficulty are assigned to each card. The StudyCards Viewer determines if the correct answer is given.</td>
</tr>
</tbody>
</table>

You can assign a level of difficulty to both types of cards. Assigning levels of difficulty lets you study easier questions first, and then progress to more difficult ones.

You can use the StudyCards Creator or TI-Connect™ software with a connectivity cable to transfer stacks of cards from the PC to the calculator. See page 27 for help with TI-Connect.

After you transfer a stack to your calculator, you can use the StudyCards App to view the cards. The StudyCards App also tracks the answers given and displays results for individual cards as well as the entire stack.
Test Preparation
To help teachers and students prepare for high-stakes exams, TI provides LearningCheck™ practice exams and StudyCards™ test prep stacks for use with for the TI-83 Plus and TI-84 Plus family of TI graphing calculators.

StudyCards™ for College Entrance Exams
Student owners of TI-83 Plus and TI-84 Plus families of graphing calculators can download TI's new SAT® and ACT® prep questions to their graphing calculators, to help guide and prepare them for these college preparatory exams. These free StudyCards™ (electronic flash cards) cover multiple areas of the test with practice questions and answers that students can review on the bus, in the cafeteria, or anytime they have a few free minutes. To download these StudyCard files, visit education.ti.com/go/testprep on the TI website.

StudyCards™ for Advanced Placement
The AP® StudyCards™ (electronic flash cards) contain sample review questions for various AP® Exams. These free files can be downloaded to TI-83 Plus, TI-84 Plus and TI-89 families of graphing calculators and can be used by students for self-review, or can be used by the teacher in conjunction with the TI-Navigator™ classroom learning system for a quick assessment of student understanding of concepts.

- AP® Biology StudyCards (TI-83 Plus and TI-84 Plus Families)
- AP® Calculus StudyCards (TI-89 Titanium)

For more information or to download the files, visit education.ti.com/go/testprep on the TI website.

LearningCheck™ Question Sets for State Practice Exams
Texas Instruments is committed to providing students with the support they need to do well on required math and science exams. That's why we provide LearningCheck™ practice exam questions sets to help teachers and students get ready for state exams, end-of-course exams, and high school exit exams. Teachers can easily download these math and science state assessments to the TI-73 Explorer™, TI-83 Plus, and TI-84 Plus families of graphing calculators.

There are different ways to download and use the question sets with your TI calculators. See the following pages for more information on:

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The multiple choice Practice Exams, listed on pages 21 to 25, are available from the TI website at education.ti.com/testprep or education.ti.com/STATE (education.ti.com/Alabama for example)

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State Practice Exams and State Standards
Each state practice exam question set contains between 50 and 120 questions organized by state standards/objectives. Each question title includes an abbreviation for the appropriate state standard or objective. Using the standards/objectives sections and the abbreviations, you can easily select questions you need to review with your students.

For example, in the Texas 9th Grade Math practice exam, questions are aligned to the TAKS™ (Texas Assessment of Knowledge and Skills) objectives as shown below.

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<tr>
<th>TAKS OBJECTIVE</th>
<th>TAKS QUESTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>(8.8)(C)</td>
<td>Jason is painting the outer surface of a cube having sides measuring 5 cm. What is the total area he will have to paint?</td>
</tr>
</tbody>
</table>

Question: Q079 – (8.8)(C)
Jason is painting the outer surface of a cube having sides measuring 5 cm. What is the total area he will have to paint?

TAKS Objective: (8.8)(C)
Objective 8
The student will demonstrate an understanding of the concepts and uses of measurement and similarity.

(8.8) Measurement. The student uses procedures to determine measures of solids. The student is expected to (C) estimate answers and use formulas to solve application problems involving surface area and volume.
Sample Practice Exam Questions
Below are sample Texas TAKS™ questions as they will appear on the graphing calculator along with the TAKS objectives they address. These are just a sample of the practice questions you will find on the TI Classroom Activities CD. State practice exams for other states follow the same design, using standards/objectives to organize and name question items.

9th Grade Math

File: TX-M09-TAKS.edc
TAKS objective: (A)(d)(3)(A)

Objective 5
The student will demonstrate an understanding of quadratic and other nonlinear functions.

A(d)(3) Quadratic and other nonlinear functions. The student understands there are situations modeled by functions that are neither linear nor quadratic and models the situations.

(A) The student uses [patterns to generate] the laws of exponents and applies them in problem-solving situations.

10th Grade Math

File: TX-M10-TAKS.edc
TAKS objective: (8.8)(B)

Objective 8
The student will demonstrate an understanding of the concepts and uses of measurement and similarity.

(8.8) Measurement. The student uses procedures to determine measures of solids. The student is expected to

(B) connect models to formulas for volume of prisms, cylinders, pyramids, and cones.
10th Grade Science

File: TX-S10-TAKS.edc
TAKS objective: (B)(10)(A)

Objective 2
The student will demonstrate an understanding of the organization of living systems.

B – Biology

(10) Science Concepts. The student knows that, at all levels of nature, living systems are found within other living systems, each with its own boundary and limits. The student is expected to

(A) interpret the functions of systems in organisms including circulatory, digestive, nervous, endocrine, reproductive, integumentary, skeletal, respiratory, muscular, excretory, and immune.

11th Grade Exit Science

File: TX-S11-TAKS.edc
TAKS objective: IPC(8)(C)

Objective 4
The student will demonstrate an understanding of the structures and properties of matter.

IPC - Integrated Physics and Chemistry

(8) Science Concepts. The student knows that changes in matter affect everyday life. The student is expected to

(C) investigate and identify the law of conservation of mass.
Downloading State Practice Exams and Selecting Questions with LearningCheck™ Creator

To download a state practice exam, go to the TI website education.ti.com/go/testprep. Navigate to your state under “State Assessment,” and select the appropriate link for the math or science exam you would like to download. From the Activities Exchange page, save the desired file to your computer. After downloading the question sets from the TI website (education.ti.com/go/testprep), follow these steps to download state practice exams to your student calculators using the LearningCheck™ Creator software or the TI Connect™ program.

STEP 1: If the LearningCheck™ Calculator Application is installed on all your student calculators, go to step 2. If not, go to http://education.ti.com/learningcheck to download the App to your PC. Internet access is required.

STEP 2: Within LearningCheck™ Creator (included with your TI-Navigator™ System or available from http://education.ti.com/learningcheckcreator), open the file containing the state practice exam items you wish to use.

STEP 3: Preview and select questions to send to your students’ calculators. Depending on the amount of memory you have available on calculators, you will likely want to use fewer than 30 questions at a time.

NOTE: Each state practice exam item bank contains between 50 and 120 questions organized by state standards. Therefore, the practice exam item banks are too large to fit “as is” within the memory constraints of the student calculators.

Sending Assignments Using TI Connect™ or LearningCheck™

After downloading the practice exams from the TI website (education.ti.com/go/testprep), follow these steps to download state practice exams to your student calculators using the LearningCheck™ Creator software or the TI Connect™ program.

STEP 1: Follow steps 1 – 3 from above for selecting questions.

STEP 2: Using the LearningCheck Creator software, change the document type from examination to self-check mode.

STEP 3: Transfer the LearningCheck practice exam to student calculators using a connectivity cable and unit-to-unit cables and one of these methods:

• LearningCheck Creator software – send to device feature

• TI Connect™ program – select TI Device Explorer and save the file to the calculator’s Flash/Archive memory

STEP 4: These practices exams are intended as a learning review. Students may work alone or in small groups to answer the questions. You may wish to circulate the room to answer students’ questions.

STEP 5: Once the students have completed the questions, as a class, review student answers, discuss problems that appear to be more challenging, and re-teach as needed.
Using State Practice Exams with the TI-Navigator™ System

After downloading the practice exams from the TI website (education.ti.com/go/testprep), follow these steps to download state practice exam items to your student calculators for use with the TI-Navigator System. If you have upgraded to TI-Navigator 3.0 software, you can visit education.ti.com/navigator for instructions on using the question set.

STEP 1: If the LearningCheck™ Calculator Application is installed on all your student calculators, go to step 2. If not, go to http://education.ti.com/learningcheck to download the App to your PC. Internet access is required.

STEP 2: Within LearningCheck™ Creator (included with your TI-Navigator™ System or available from http://education.ti.com/learningcheckcreator), open the file containing the state practice exam items you wish to use.

STEP 3: Preview and select questions to send to your students’ calculators. Depending on the amount of memory you have available on calculators, you will likely want to use fewer than 30 questions at a time.

   NOTE: Each state practice exam item bank contains between 50 and 120 questions organized by state standards. Therefore, the practice exam item banks are too large to fit “as is” within the memory constraints of the student calculators.

STEP 4: After you have selected your questions, use Send to Class to distribute the state practice exam file(s) to your students.

STEP 5: These practices exams are intended as a learning review. Students may work alone or in small groups to answer the questions. You may wish to circulate the room to answer students’ questions.

STEP 6: Once the students have completed the questions, select Class Analysis. Then select Collect Answer Files From Class.

   NOTE: Before collecting the answers, we recommend that you check the options “Delete Answer File from Device after Collect” and “Delete Assignment File from Device after Collect” to help manage calculator memory as well as maintain integrity of the sample questions for future classes.

STEP 7: Using Class Results Slide Show, as a class, review student answers, discuss problems that appear to be more challenging, and re-teach as needed.
These multiple choice Practice Exams are available from the TI website at education.ti.com/go/testprep or education.ti.com/STATE (education.ti.com/Alabama for example).

<table>
<thead>
<tr>
<th>STATE</th>
<th>EXAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>ARMT – Alabama Reading and Mathematics Test — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>SBA – Standards Based Assessment — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>AHSGE – Alabama High School Graduation Exam — Grade 10 Math, Grade 11 Math, Physical Science, Biology</td>
</tr>
<tr>
<td>Alaska</td>
<td>Terra Nova — Grade 9 Math</td>
</tr>
<tr>
<td></td>
<td>HSGQE – Alaska High School Graduation Qualifying Exam — Grade 10 Math</td>
</tr>
<tr>
<td>Arkansas</td>
<td>ACTAAP – Arkansas Comprehensive Testing, Accountability, and Assessment Program — Grade 6 Math, Grade 7 Math, Grade 8 Math, Algebra 1, Geometry</td>
</tr>
<tr>
<td>Arizona</td>
<td>AIMS – Arizona Instrument to Measure Standards — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 10 Math, Grade 12 Math, Biology</td>
</tr>
<tr>
<td></td>
<td>Terra Nova — Grade 9 Math</td>
</tr>
<tr>
<td>California</td>
<td>CST – California Standards Test — Grade 6 Math, Grade 7 Math, Algebra 1, Algebra 2, Geometry, Chemistry, Biology, Environmental Science, Physics</td>
</tr>
<tr>
<td></td>
<td>CAHSEE – California High School Exit Exam — HS Math</td>
</tr>
<tr>
<td>Colorado</td>
<td>CSAP – Colorado Student Assessment Program — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science, Grade 9 Math, Grade 10 Math, Grade 11 Math, Earth Science, Life Science, Physical Science</td>
</tr>
<tr>
<td>Connecticut</td>
<td>CMT – Connecticut Mastery Test — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>CAPT – Connecticut Academic Performance Test — Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td></td>
<td>CAPT – Connecticut Academic Performance Test 2nd Generation — Grade 10 Math</td>
</tr>
<tr>
<td>Delaware</td>
<td>DSTP – Delaware Student Testing Program — Grade 6 Math, Grade 7 Math, Grade 8 Math, HS Math, HS Science</td>
</tr>
<tr>
<td>District of Columbia</td>
<td>SAT9 – Washington DC Stanford Achievement Test 9th Edition — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 9 Math, Grade 10 Science</td>
</tr>
<tr>
<td>Florida</td>
<td>FCAT™ – Florida Comprehensive Assessment Test — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science, Grade 9 Math, Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td>Georgia</td>
<td>CRCT – Criterion Referenced Competency Test — Grade 6 Math, Grade 6 Science, Grade 7 Math, Grade 7 Science, Grade 8 Math, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td>GHSGT – Georgia High School Graduation Tests — HS Math</td>
</tr>
<tr>
<td></td>
<td>EOC – End of Course Test — Algebra 1, Geometry, Biology, Physical Science</td>
</tr>
</tbody>
</table>
These multiple choice Practice Exams are available from the TI website at education.ti.com/go/testprep or education.ti.com/STATE (education.ti.com/Alabama for example).

<table>
<thead>
<tr>
<th>STATE</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>HSA – Hawaii State Assessment — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>HCPS – Hawaii Content and Performance Standards II State Assessment —</td>
</tr>
<tr>
<td></td>
<td>Grade 10 Math, Grade 11 Science</td>
</tr>
<tr>
<td>Idaho</td>
<td>ISAT – Idaho Standards Achievement Test — Grade 6 Math, Grade 7 Math,</td>
</tr>
<tr>
<td></td>
<td>Grade 8 Math, Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td>Illinois</td>
<td>ISAT – Illinois Standards Achievement Test — Grade 6 Math, Grade 7 Math,</td>
</tr>
<tr>
<td></td>
<td>Grade 8 Math, Grade 7 Science</td>
</tr>
<tr>
<td></td>
<td>PSAE – Prairie State Achievement Examination — Grade 11 Math, Grade 11 Science</td>
</tr>
<tr>
<td>Indiana</td>
<td>ISTEP – Indiana Statewide Testing for Educational Progress Plus — Grade 6 Math, Grade 7 Math, Grade 8 Math, Algebra 1, Geometry, Biology, Chemistry</td>
</tr>
<tr>
<td>Iowa</td>
<td>ITBS – Iowa Test of Basic Skills — Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>ITED – Iowa Tests of Educational Development — Grade 11 Math</td>
</tr>
<tr>
<td></td>
<td>ITBS – Iowa Test of Basic Skills — Grade 11 Science</td>
</tr>
<tr>
<td>Kansas</td>
<td>KMA – Kansas Mathematics Assessment — Grade 6 Math, Grade 7 Math, Grade 8</td>
</tr>
<tr>
<td></td>
<td>Math, Grade 10 Math</td>
</tr>
<tr>
<td></td>
<td>KSA – Kansas Science Assessment — Grade 7 Science</td>
</tr>
<tr>
<td></td>
<td>KCA – Kansas Computerized Assessment — Grade 10 Science</td>
</tr>
<tr>
<td>Kentucky</td>
<td>KCCT – Kentucky Core Content Test — Grade 6 Math, Grade 7 Math, Grade 8</td>
</tr>
<tr>
<td></td>
<td>Math, Grade 12 Math, Grade 10 Science</td>
</tr>
<tr>
<td></td>
<td>Kentucky CTBS/5 Survey Edition — Grade 9 Math</td>
</tr>
<tr>
<td>Louisiana</td>
<td>LEAP – Louisiana Educational Assessment Program — Grade 8 Math, Grade 8</td>
</tr>
<tr>
<td></td>
<td>Science</td>
</tr>
<tr>
<td></td>
<td>GEE – Louisiana Graduation Exit Examination — Grade 10 Math, Grade 11 Science</td>
</tr>
<tr>
<td>Maine</td>
<td>MEA – Maine Educational Assessment — Grade 8 Math, Grade 11 Math, Grade 11</td>
</tr>
<tr>
<td></td>
<td>Science</td>
</tr>
<tr>
<td>Maryland</td>
<td>MSA – Maryland School Assessment — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>HSA – Maryland High School Assessment — Geometry, Algebra, Biology</td>
</tr>
<tr>
<td>STATE</td>
<td>EXAM</td>
</tr>
<tr>
<td>--------------</td>
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</tr>
<tr>
<td>Massachusetts</td>
<td><strong>MCAS</strong> – Massachusetts Comprehensive Assessment System — Grade 6 Math, Grade 8 Math, Grade 10 Math, Grade 8 Science, Biology, Chemistry, Physics</td>
</tr>
<tr>
<td>Michigan</td>
<td><strong>MEAP</strong> – Michigan Educational Assessment Program — Grade 8 Math, Grade 8 Science, Grade 11 Math, Grade 11 Science</td>
</tr>
</tbody>
</table>
| Minnesota     | **MCA** – Minnesota Comprehensive Assessments — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 10 Math, Grade 8 Science, Grade 11 Science  
                 **GRAD** – Minnesota Graduation Required Assessments for Diploma — Grade 11 Math |
| Mississippi   | **CT** – Mississippi Curriculum Test — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science  
                 **SATP** – Mississippi Subject Area Testing Program — Algebra 1, Biology |
| Missouri      | **MAP** – Missouri Assessment Program — Grade 8 Math, Grade 11 Math, Grade 7 Science, Grade 10 Science |
| Montana       | **MontCas** – Montana Comprehensive Assessment System — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 10 Math, Grade 11 Math  
                 **ITBS** – Iowa Test of Basic Skills — Grade 8 Science  
                 **ITED** – Iowa Test of Educational Development — Grade 11 Science |
| Nebraska      | **STARS** – Nebraska School-Based Teacher-Led Assessment and Reporting System  
                 Grade 8 Math, Grade 11 Math, Grade 8 Science, Grade 11 Science |
| Nevada        | **CRT** – Nevada Criterion Referenced Test — Grade 8 Math, Grade 8 Science  
                 **HSPE** – Nevada High School Proficiency Examination — Grade 11 Math, Grade 10 Science |
| New Hampshire | **NECAP** – New England Common Assessment Program — Grade 6 Math, Grade 7 Math, Grade 8 Math  
                 **NHEIAP** – New Hampshire Educational Improvement and Assessment Program  
                 Grade 10 Math, Grade 10 Science, Grade 11 Science |
| New Jersey    | **GEPA** – Grade Eight Proficiency Assessment — Grade 8 Math, Grade 8 Science  
                 **HSPA** – High School Proficiency Assessment — Grade 11 Math, Grade 11 Science |
| New Mexico    | **CRT** – New Mexico Criterion Referenced Test — Grade 8 Math  
                 **NMSBA** – New Mexico Standards-Based Assessment — Grade 6 Science, Grade 7 Science, Grade 8 Science  
                 **NMAA** – New Mexico Achievement Assessment — Grade 9 Math  
                 **NMTP** – New Mexico Testing Program — Grade 11 Science  
                 **HSCE** – New Mexico High School Competency Examination — Grade 11 Math |
## Test Prep

**LearningCheck™ Practice Exams**

These multiple choice Practice Exams are available from the TI website at education.ti.com/go/testprep or education.ti.com/STATE (education.ti.com/Alabama for example).

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</thead>
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<tr>
<td><strong>New York</strong></td>
<td><strong>NYSTP – New York State Testing Program</strong> — Grade 8 Math, Grade 8 Science</td>
</tr>
<tr>
<td><strong>North Carolina</strong></td>
<td><strong>EOG – North Carolina End-of-Grade Test</strong> — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 6 Science, Grade 7 Science, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td><strong>NCHSEE – North Carolina High School Exit Exam</strong> — HS Math, HS Science</td>
</tr>
<tr>
<td></td>
<td><strong>EOC – North Carolina End-of-Course Test</strong> — Algebra 1, Algebra 2, Geometry, Biology, Chemistry, Physical Science, Physics</td>
</tr>
<tr>
<td><strong>North Dakota</strong></td>
<td><strong>NCSB – North Dakota Standards and Benchmarks</strong> — Grade 8 Math, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td><strong>NDMAP – North Dakota Math Assessment Program</strong> — Grade 12 Math</td>
</tr>
<tr>
<td><strong>Ohio</strong></td>
<td><strong>AT – Ohio Achievement Tests</strong> — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td><strong>OGT – Ohio Graduation Tests</strong> — Grade 9 Math, Grade 10 Math, Grade 9 Science</td>
</tr>
<tr>
<td><strong>Oklahoma</strong></td>
<td><strong>PASS – Priority Academic Student Skills</strong> — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 6 Science, Grade 7 Science, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td><strong>OKPlan – Oklahoma Educational Planning and Assessment System</strong> — Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td></td>
<td><strong>Epas – Oklahoma Explore, Plan, Act Standards</strong> — Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td><strong>Oregon</strong></td>
<td><strong>KS – Oregon Knowledge and Skills</strong> — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td><strong>CIM – Oregon Certificate of Mastery</strong> — Grade 10 Math, Grade 10 Science</td>
</tr>
<tr>
<td><strong>Pennsylvania</strong></td>
<td><strong>PSSA – Pennsylvania System of School Assessment</strong> — Grade 8 Math, Grade 11 Math</td>
</tr>
<tr>
<td><strong>Rhode Island</strong></td>
<td><strong>NECAP – New England Common Assessment Program</strong> — Grade 8 Math</td>
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<tr>
<td></td>
<td><strong>RIDE – Rhode Island New Standards Reference Exams</strong> — Grade 10 Math</td>
</tr>
<tr>
<td></td>
<td><strong>RITSSA – Rhode Island Tri-State Science Assessment</strong> — Grade 11 Science</td>
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<tr>
<td>STATE</td>
<td>EXAM</td>
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<tr>
<td>--------------</td>
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<tr>
<td>South Carolina</td>
<td>PACT – Palmetto Achievement Challenge Tests — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 6 Science, Grade 7 Science, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td>BSEE – South Carolina Basic Skills Assessment Program — Grade 10 Math</td>
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<td>HSAP – South Carolina High School Assessment Program — Grade 11 Math</td>
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<tr>
<td></td>
<td>EOCEP - South Carolina End-of-Course Examination Program — Biology, Physical Science</td>
</tr>
<tr>
<td>South Dakota</td>
<td>DSTEP – Dakota State Test of Education Progress — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 11 Science</td>
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<tr>
<td></td>
<td>SAT – South Dakota Stanford Achievement Test 9th Edition — Grade 11 Math</td>
</tr>
<tr>
<td>Tennessee</td>
<td>TCAP – Tennessee Comprehensive Assessment Program — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 6 Science, Grade 7 Science, Grade 8 Science</td>
</tr>
<tr>
<td></td>
<td>Tennessee Gateway Tests — Algebra 1, Geometry, Biology, Chemistry</td>
</tr>
<tr>
<td>Texas</td>
<td>TAKS™ – Texas Assessment of Knowledge and Skills — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 9 Math, Grade 10 Math, Grade 11 Math, Grade 8 Science, Grade 10 Science, Grade 11 Science</td>
</tr>
<tr>
<td>Utah</td>
<td>CRT – Utah Criterion Referenced Test — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science</td>
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<tr>
<td></td>
<td>Upass – Utah Performance Assessment System for Students — Grade 10 Math, Grade 11 Math, Grade 11 Science</td>
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<tr>
<td>Vermont</td>
<td>NECAP – New England Common Assessment Program — Grade 6 Math, Grade 7 Math, Grade 8 Math</td>
</tr>
<tr>
<td></td>
<td>NSRE – Vermont New Standards Reference Exams — Grade 10 Math</td>
</tr>
<tr>
<td></td>
<td>VTPass – Vermont Partnership for the Assessment of Standards-Based Science</td>
</tr>
<tr>
<td></td>
<td>Grade 11 Science</td>
</tr>
<tr>
<td>Virginia</td>
<td>SOL – Standards of Learning — Grade 8 Math, Algebra 1, Geometry, Algebra 2, Grade 8 Science, Earth Science, Biology, Chemistry</td>
</tr>
<tr>
<td>Washington</td>
<td>WASL – Washington Assessment of Student Learning — Grade 6 Math, Grade 7 Math, Grade 10 Math, Grade 8 Science, Grade 10 Science</td>
</tr>
<tr>
<td>West Virginia</td>
<td>WESTEST – West Virginia Educational Standards Test — Grade 6 Math, Grade 7 Math, Grade 8 Math, Algebra, Grade 6 Science, Grade 7 Science, Grade 8 Science, HS Science</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>WKCE – Wisconsin Knowledge and Concepts Examination — Grade 8 Math, Grade 12 Math, Grade 8 Science, Grade 12 Science</td>
</tr>
<tr>
<td>Wyoming</td>
<td>PAWS – Proficiency Assessment of Wyoming Students — Grade 6 Math, Grade 7 Math, Grade 8 Math, Grade 8 Science, Grade 11 Science</td>
</tr>
<tr>
<td></td>
<td>WyCAS – Wyoming Comprehensive Assessment System — Grade 11 Math</td>
</tr>
</tbody>
</table>
BEFORE INSTALLING A CALCULATOR SOFTWARE APP

Make sure the App is designed for your calculator
Although some Apps have been designed for more than one calculator, you must have the correct type of App file for your calculator. The last 3 characters of the App file name identify the calculator type.

<table>
<thead>
<tr>
<th>Calculator</th>
<th>File extension</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>TI-3 Explorer™</td>
<td>.73k</td>
<td>numline.73k</td>
</tr>
<tr>
<td>TI-83 Plus</td>
<td>.8xk</td>
<td>studycrd.8xk</td>
</tr>
<tr>
<td>TI-84 Plus</td>
<td>.8xk</td>
<td>cabrijrl03.8xk</td>
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<td>TI-89 Titanium</td>
<td>.89k</td>
<td>tifinance.89k</td>
</tr>
<tr>
<td>Voyage™ 200</td>
<td>.9xk</td>
<td>ticabri.9xk</td>
</tr>
</tbody>
</table>

Make sure you have enough free space
The amount of space each App requires is listed in the user guide for the App.

- On the TI-73 Explorer, press 2nd [MEM], and then select “Check Apps.” The number of free spaces is listed on the first line of the screen. If you do not have enough spaces free, you must delete one or more Apps in order to have enough space to load another App.

- On the TI-83/TI-84 Plus Family, press 2nd [MEM], and then select “Mem Mgmt/Del.” “RAM Free” is the amount of RAM that is available. “Arc Free” is the amount of archived memory that is available. Flash Apps are stored in archived memory. If you do not have enough Arc Free, you must delete Apps or other archived files (variables, lists, matrices, programs, etc.), in order to have enough free space to load another App.

- On the TI-89 Titanium and Voyage 200, press 2nd [MEM]. The amount of Flash ROM free is listed at the bottom right of the screen. Flash Apps use Flash ROM space. If you do not have enough Flash ROM free, you must delete Apps or other archived files (variables, lists, matrices, programs, etc.), in order to have enough free space to load another App.

Make sure your unit does not display a low-battery message
The low-battery message is displayed on the initial screen when you first turn on your calculator. You should not attempt an App download if the low-battery message appears. If you receive this error during an installation, change the batteries before trying again.
Getting Started with TI Assessment

Downloading and Installing Apps

**Downloading Apps**
- Go to TI's website, http://education.ti.com, and click **DOWNLOADS**.
- Below the **Calculator Software Applications** section, click the link “Download Apps and OS.”
- Select your calculator model from the list of calculators on the left.
- Click on the name of the App you want to download. Press the **DOWNLOAD** button. Accept the license agreement, click on the App name, and save the App to your computer.

**Installing Apps on your calculator**

You will need a TI Connectivity cable and TI Connect™ Software.

**If you do not have TI Connect – please go to Downloading and Installing TI Connect (below)**

If you have both of these, please continue.
- Connect the calculator to the computer using one of the various connectivity cables and launch TI Connect.
- Click on the TI DeviceExplorer icon and select your calculator. A new screen will open with a display of everything currently in your calculator’s memory.
- To transfer the App from your computer to your calculator, just drag and drop the file from your computer to the open TI Device Explorer window. A transferring screen will appear, keeping you updated on the progress. The window will refresh after the download, showing the new data.
- Now you are ready to use your new calculator App.

**For TI Connect for Macintosh® Users:**
Launch TI Connect for Macintosh. On the menu bar, select “Connection” and then select your calculator. Select the port to which the TI Connectivity cable is connected and click “Connect.” (The TI Device Explorer window will open.) Drag and drop the App file(s) into the TI Device Explorer window.

**For TI Connect for Mac OS X Users:**
Launch TI Device Explorer from within TI Connect. A device window will open listing the connected calculator. Drag and drop the App file(s) on the name of the calculator upon which you would like the App file(s) installed.

**Downloading and Installing TI Connect™**
To download applications and programs to your calculator, upgrade the operating system, create backup files, or capture screen images, you will need to attach your calculator to your computer using a connectivity cable. Then you can use the TI Connect™ Software, which is free to download.

1. **Download TI Connect**
   A. Go to TI’s website at http://education.ti.com.
   B. Click on “DOWNLOADS” in the upper right corner of the webpage.
   C. From the Computer Software drop-down list, select TI Connect™ Software.
   D. From the Download TI Connect drop-down list, select either TI Connect for Windows or Macintosh and follow the prompts to save the software to your computer.

2. **Install TI Connect**
   A. Double click on the installer icon and follow the onscreen directions.
   B. Launch TI Connect. The application will open to the TI Connect Desktop screen.
Transferring Files Using a Unit-to-Unit Link Cable
You can transfer programs, lists, pics, matrices, Y-Vars, AppVars, etc., as well as certain Apps, from one calculator to another calculator of the same type.

Transferring between TI-73 Explorer™ Calculators
Connect a unit-to-unit link cable between the two calculators, and then follow the instructions below.

On the receiving calculator:
- Press [9], and then select “Link” to display the SEND RECEIVE screen. The SEND menu is displayed.
- Press [1] to display the RECEIVE menu.
- Select 1: Receive. The receiving calculator is now ready to receive information from the sending calculator.

On the sending calculator:
- Press [9], and then select “Link” to display the SEND RECEIVE screen. The SEND menu is displayed.
- Scroll through the SEND menu, and select a category.
- Move the cursor to the item you want to send, and then press [ENTER] to select it. You can select as many items from a category as you want.
- Press [1] to display the TRANSMIT menu.
- Select 1: Transmit. The item(s) you selected will be transmitted.

Transferring between TI-83/TI-84 Plus Family of Graphing Calculators*
Connect a unit-to-unit link cable between the two calculators, and then follow the instructions below.

On the receiving calculator:
- Press [2nd] [LINK] to display the SEND RECEIVE screen. The SEND menu is displayed.
- Press [1] to display the RECEIVE menu.
- Select 1: Receive. The receiving calculator is now ready to receive information from the sending calculator.

On the sending calculator:
- Press [2nd] [LINK] to display the SEND RECEIVE screen. The SEND menu is displayed.
- Scroll through the SEND menu, and select a category.
- Move the cursor to the item you want to send, and then press [ENTER] to select it. You can select as many items from a category as you want.
- Press [1] to display the TRANSMIT menu.
- Select “Transmit.” The item(s) you selected is/are transmitted.

*For transferring between the TI-89 and Voyage™ 200 calculators, contact customer support. (See page 32.)
DELETING APPS*

Deleting an App from the TI-73 Explorer™

- From the home screen, press 2nd MEM to display the “Memory” menu.
- Select “Delete.”
- Use ▲ or ▼ to select “Apps.”
- Use ▲ or ▼ to highlight the App you want to delete with the cursor.
- Press ENTER.
- Select “Yes.”

Deleting an App from the TI-83/TI-84 Plus Family**

- From the home screen, press 2nd MEM to display the “Memory” menu.
- Select “Mem Mgmt/Del.”
- Use ▲ or ▼ to select “Apps.”
- Use ▲ or ▼ to highlight the App you want to delete with the cursor.
- Press DEL.
- Select “Yes.”

Texas Instruments provides extensive support for their products. For questions about, or problems with, calculators and software applications, contact Texas Instruments: http://education.ti.com, TI-Cares@ti.com, 1-800-TI-CARES.

ERROR MESSAGES WHILE INSTALLING AN APP

Archive Full Error

Occurs when the calculator does not have sufficient memory to store the App.

- You must delete an App and/or archived variable(s) from the calculator in order to make room for another App.
- You can back up an App to your computer using TI Connect™ software. Transfer unwanted Apps or variables using the Device Explorer.

Communication Error

Indicates TI Connect (or TI-GRAPH LINK™) software is unable to communicate with the calculator. The problem is usually associated with the TI Connectivity cable and its connection to the calculator and/or computer.

- Make sure the cable is firmly pushed into the calculator and the computer.
- If this does not correct the problem, try a different TI Connectivity cable, and reboot your computer.
- If you continue to get this error, please contact 1-800-TI-CARES or ti-cares@ti.com.

Unit-to-Unit Communication (Xmit) Error

Indicates the calculator was unable to transmit an item. This problem is usually associated with the unit-to-unit cable and its connection between two TI calculators.

- Make sure the cable is firmly inserted in the I/O port of each calculator.
- If the receiving unit is a TI-73 Explorer or TI-83/TI-84 Plus Family, it must be in “Receive” mode before sending.
- If you pressed ON to break communication during transmission, this error message is displayed.

*To delete other file types, select a different category than “Apps” above.
**For deleting Apps from the TI-89 or Voyage™ 200, contact customer support. (See page 32.)
Professional Development

T³™ • Teachers Teaching with Technology™
Learn more about TI professional development at education.ti.com/t3

Our goal is to provide quality professional development that enables the mathematics and science educator to be successful in the classroom through the appropriate use of technology.

Train the Trainer Courses
The Teacher Leader Cadre (TLC) program incorporates research-proven practices that lead to more effective teaching. The TLC program offers truly systemic professional development. Ongoing training can keep educators at the forefront of teaching innovation as well as help you meet mandated professional development requirements. Courses available include:

- Algebra
- Geometry with the TI-84 Plus
- High School Math with TI-Navigator
- Vernier/T³ Earth Science with TI Graphing Calculators
- AgriScience, and more.

education.ti.com/us/tlc

Free Online Courses
T³ Online Courses are high-quality professional development that fits your schedule! In order to reach more teachers in need of quality Professional Development, our T³ Online Courses are now FREE. Courses available include

- Vernier/T³ Introduction to Scientific Data Collection and Analysis
- Algebra using the TI-83/84 Plus
- TI-Navigator for High School Math
- Calculus using the TI-89, and more.

To take a course, visit
education.ti.com/onlinecourses

Conferences
T³ hosts an international conference and several regional conferences every year. For a list of sites, visit
education.ti.com/t3conferences

T³ Outreach Program
Through our T³ Outreach program we offer short-term customized workshops. To learn more, visit
education.ti.com/us/t3outreach

For more information,
visit http://education.ti.com/t3
or call 1-888-2TCUBED, 1-888-232-8233.
A growing body of research states that the use of the TI-Navigator™ System and graphing calculators improves student engagement, understanding and performance.

The University of Hawaii Curriculum Research & Development Group studied two eighth grade Algebra 1 classes: one using only graphing calculators, the other using graphing calculators with the TI-Navigator System. (Both used the TI-84 Plus Silver Edition.) Their key findings are listed below.

- When teachers incorporated the TI-Navigator System with graphing calculators into their instruction, students showed improvement in the areas of: conceptual understanding, classroom interactions, quantity and quality of responses, time on task and time to start tasks.
- Both classes performed at the same skill level on graphing, but the one class that also used the TI-Navigator System experienced greater conceptual understanding.
- Use of the TI-Navigator System prompts students to engage on tasks faster, remain focused, and take part in productive group interaction.
- Observational data showed that response times by students using the TI-Navigator System to initiate tasks was significantly faster compared to students using only graphing calculators. The time on the task was reported to be longer as well.
- The TI-Navigator System provided in-depth discussion points, leading to improved student interaction and collaboration.
- Students using the TI-Navigator keyboard to complete LearningCheck™ assignments (versus paper and pencil) were able to provide more detailed, higher quality responses to open-ended math questions.

The University of Texas at Austin studied the use of the TI-Navigator System along with an algebra curriculum in up to 25 days of classroom instruction during an 11-week period. Researchers compared results from the state-administered 8th grade TAKS test and 9th grade Algebra TAKS test.

- The use of the TI-Navigator System significantly improves student scores in algebra.
- The TI-Navigator System helps students in the reduced lunch category, female students and Hispanic students achieve higher test scores, successfully leading to a reduction in the achievement gap.

SRI International analyzed 26 classroom-based studies on related communication system technology to identify key benefits recognized by teachers. Their key findings are listed below.

- When the TI-Navigator System is incorporated into classroom instruction:
  - students are more engaged, able to understand complex subjects, more interested in topics, able to gauge their own level of understanding and more willing to take part in discussions.
  - teachers are able to promote greater discussions and interactivity, to assess and guide student performance, and extend the classroom topics beyond the allotted class time.

- Use of the TI-Navigator System:
  - supports multiple question types and provides immediate feedback and assessment.
  - helps direct students toward mastery-oriented goals.
  - engages prior knowledge by collecting everyone’s responses to problems.
  - facilitates conceptual reasoning and fosters collaboration.
Texas Instruments (TI) Support and Service Information

For general information:
  E-mail: ti-cares@ti.com
  Phone: 1-800-TI-CARES (1-800-842-2737)
  For US, Canada, Mexico, Puerto Rico, and Virgin Islands only

For technical questions:
  E-mail: ti-cares@ti.com
  Phone: 1-972-917-8324

Home page: education.ti.com