



ATTAINMENT'S
Number
Sense

USER GUIDE

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Number Sense, based on Madalaine Pugliese’s systematic Language and Learning Framework (formerly titled “Stages”) is a comprehensive program designed to teach number sense—the ability to intuitively recognize, use, and apply numbers in a variety of ways. Number sense is the most important building block of mathematics.

Number Sense is “smart” software that tracks practice results for each skill and then automatically increases learner’s difficulty in small increments. The program is compatible with switch use and scanning for students with learning disabilities and special needs, and settings are fully customizable to each individual learner.

1.1 QUICK START

The home screen shows nine gears or **categories**, each representing a subject in mathematics. Click on a category to begin.

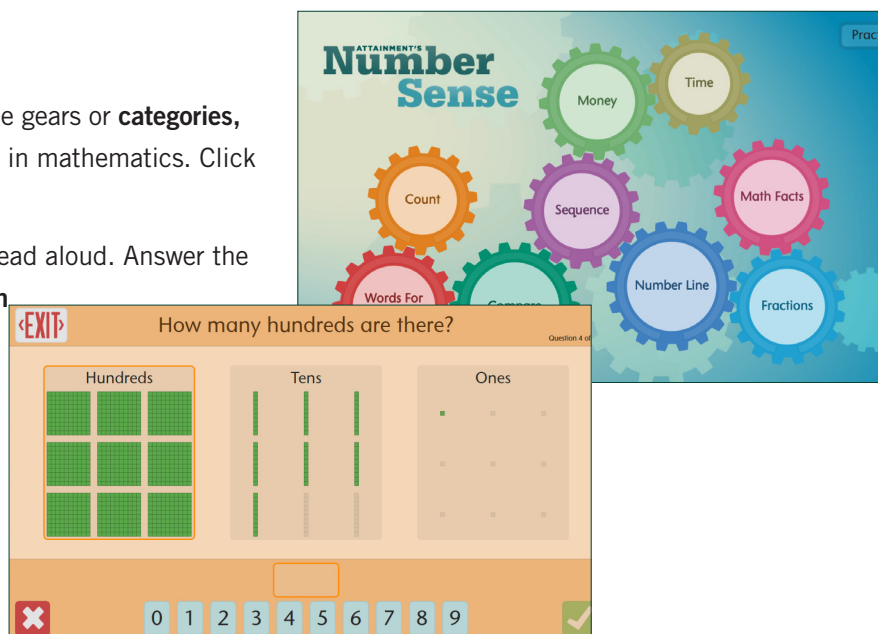
A question appears and is read aloud. Answer the question and click the **green**

checkmark in the bottom right corner to submit the answer.

To delete or change an answer before submitting, click the **red “X”** in the bottom left corner.

Once an answer is submitted, feedback will be given. The program automatically advances to the next question after a correct answer.

Click the **EXIT** button in the top left corner to return to the home screen.



2.1 TERMS USED IN NUMBER SENSE

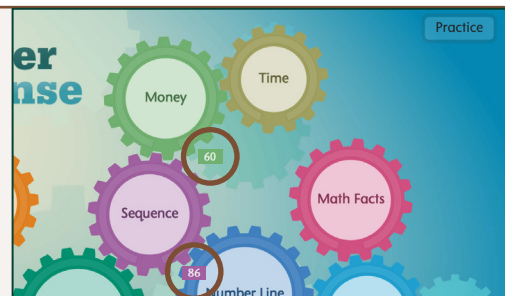
Category Each gear on the title screen represents a category, or subject in mathematics. The nine categories:

- *Words For Numbers, Count, Compare* relate to foundational number sense.
- *Sequence* is a bridge to mathematical concepts.
- *Money, Time* relate to real-world use of numbers.
- *Number Line, Math Facts, Fractions* relate to mathematical skills.

Session One round of questions in a category. The session finishes when a learner answers the predetermined number of questions, which can be adjusted from 5 in the Settings menu. There are two types of sessions: **Practice** and **Test**.

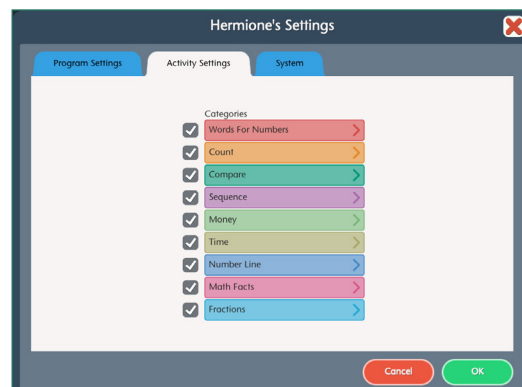
The **Number Sense** program keeps track of everything done in a session. After the learner exits a category, the inner circle of that category will highlight the proportion of questions done. If all are done, a number will appear indicating the percentage correct.

NOTE: These visuals only appear while the user is logged in and working. They reset on the next login.



Activity Subset of categories specifying the type of question. For example, **Add, Subtract, Multiply, and Divide** are the activities in the **Math Facts** category. Activities are independent of each other, so progress in each activity is separately tracked and recorded.

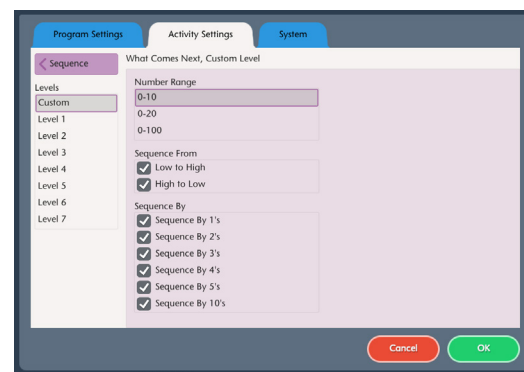
Options Access to all settings in the program. This is where you create your list of users, and where activity settings can be viewed and changed.



Activity list for the “Sequence” category, as seen in the settings menu.

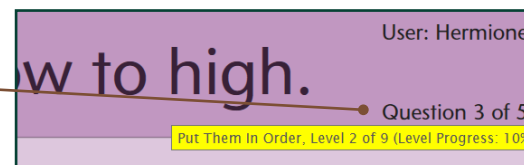
NOTE ABOUT ACTIVITIES: If more than one activity is enabled, the number of questions will be divided roughly equally between them, in *random* order. In other words, the first question may or may not be from the first activity listed.

Levels Each activity has between two and nine levels, designed to increase in difficulty and/or complexity as they progress. For instance, the number range gets larger in succeeding levels. In practice sessions, the software automatically moves to the next activity level when an 80% score is achieved.



Level list for the “What Comes Next” activity, as seen in the settings menu.

SNAPSHOT OF PROGRESS: For a quick view of a student’s progress during the session, roll cursor over the question number line at top right.



AUTO LEVEL PROGRESSION

Number Sense is “smart” software. It not only records and retains all of a user’s practice and test data, but it uses that data to advance learners to succeeding levels *automatically* upon achieving 80% accuracy. A couple things to keep in mind:

1. Level progression only happens in Practice mode.

This way, you can test a learner at their current level. Be sure to check what that level is first. You may be surprised at the progress!

2. Level progression in each activity is independent.

For example, if the user scores high in the Math Facts addition questions, but not in the subtraction questions, the level will progress only in the “Add” activity. After that, the same session will have Level 2 addition questions and Level 1 subtraction questions.

3. Five questions—the default number per session—is not enough.

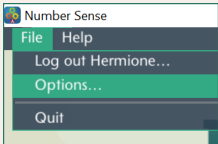
Auto progression is based on a complex point system which requires 24 points in an activity to advance. 8 questions in the same activity, with a perfect score, will do it. But unless you change the “Questions per Session” number in Program Settings and disable all but one activity in a category, level progression will require more than one session per category. Points are retained only for the last 10 questions answered, so improvement will be noted quickly.

4. Custom Level takes you out of auto level progression.

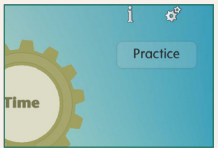
The Custom level is completely flexible, but does not advance. Learner stays in Custom Level until the level is changed in Activities Settings.

Section 2 Overview of Number Sense

To find Options menu in Windows: Bring cursor to the top of the screen to reveal a banner. Click on **File** and then **Options**.

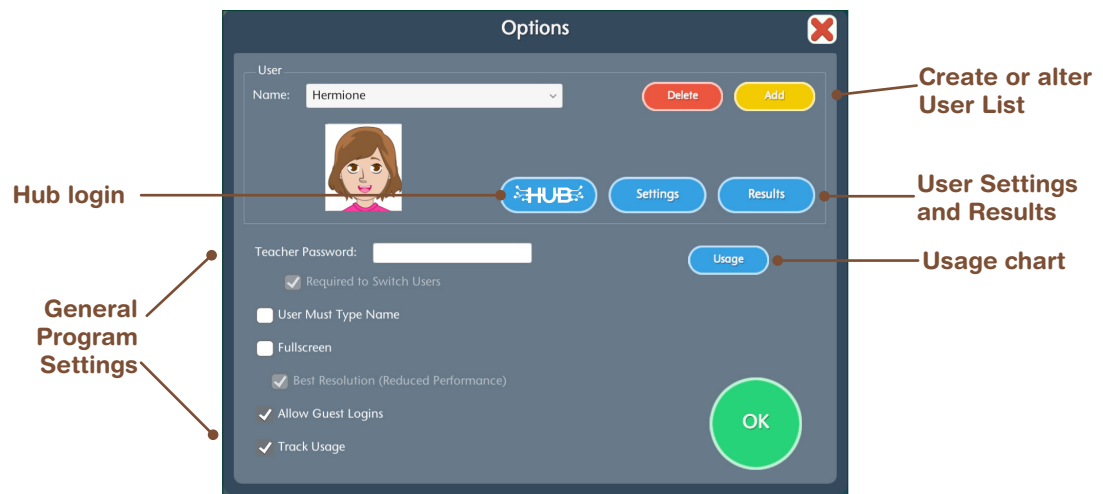


To find Options menu on iPad: Tap the gears at upper right corner of screen.



NOTE TO IPAD USERS:

The images in this manual are all derived from Number Sense software for Windows. The functions are the same in both operating systems, but the screens may have some differences in appearance.



2.2 THE OPTIONS MENU

User Settings

Add / Delete Use these buttons to add or remove users. Details, p. 23.

HUB Log in to manage online student accounts. Details, p. 21.

Settings Includes tabs for *Program Settings*, *Activity Settings*, and *System*.

Program Settings Tab: Important settings include the mode (practice or test), and the number of questions in a session. Once set for a user, they apply to all activities. Details, p. 24.

Activity Settings Tab: Location for changing the categories and/or activities available to the learner, as well as starting level. Detailed description of activities and levels are in **Categories** section starting p. 26.

System Tab: Settings for scanning, rollovers, and program sound. Details, p. 27.

Results Click the **Results** button to see a user's practice and test scores. Details, p. 29.

General Program Settings

Teacher Password (optional). If password is filled in, you may check or uncheck the requirement for password to switch users.

User Must Type Name—If selected, there will not be a pulldown list on login menu.

Fullscreen—can be disabled; however, running fullscreen is recommended at all times.

Allow Guest Logins—If this feature is disabled, only named users can use the program.

Track Usage—This is not specific to any user, but a general record of the amount of time used on particular days. The **Usage** button will show you a chart of student usage.

3.1 WORDS FOR NUMBERS

Math Skills Covered

- Recognize numbers have both numerical and text representations
- Match a number to its written name
- Verbal
- Understand the meaning and position of a comma used in large numbers
- Write a number when given its written name
- Understand place value

Three Activities

3.1.1 FIND THE NUMBER

A number is given in written form at the top of the screen. The learner selects an answer choice by clicking on one of three choices, and the green arrow submits the answer choice.

Activity settings and levels for Find the Number

Number Range: 0–9, 0–99, 0–999, and 0–9999.

Levels 1 through 4 correspond with the number ranges. Custom level can be any number range.

3.1.2 WRITE THE NUMBER

A number is given in written form at the top of the screen. The learner then creates that number in the box with number line or keyboard. The green arrow submits the answer.

Activity settings and levels for Write the Number:

same as “Find the Number”

Find The Number - Level 1 sample

Click on one of the choices to answer.

Write The Number - Level 2 sample

Click number on number line or type on keyboard.

3.1.3 MAKE THE SAME NUMBER

A number is shown on the screen with empty place value boxes. The learner matches the number by clicking the plus or minus buttons by the number. Numbers carry over to the next place value. For example, if the ones column is at 9 and the plus is clicked, the tens column will increase and the ones go to zero.

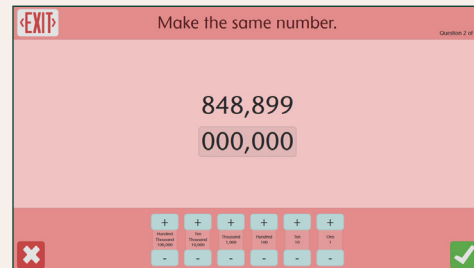
Activity settings and levels for Make the Same Number

Maximum Place Value: Levels 1 through 5 step through the 3-digit, 4-digit, 5-digit, 6-digit, and 7-digit numbers.

Custom level can select any maximum place value.

Visible Target box: Checked for all 5 levels. If unchecked, the number will be spoken aloud, but not shown on screen.

Make The Same Number - Level 4



3.2 COUNT

Math Skills Learned

- Count objects by ones and tens
- Explore and use place value
- Use place value representations to count up to 999 objects
- Use numbers and objects to describe how many objects are in a set
- Count objects using one-to-one correspondence

Four Activities

3.2.1 COUNT TO 100

In this activity the learner is given a certain number of objects on screen, grouped by fives. The learner counts them and answers how many objects there are. If the learner submits an incorrect answer, feedback will say whether they answered with “too many” or “not enough.”

Activity settings for Count to 100

Number Range: 1–10, 1–20, or 1–100

Objects to Count: Pictures (e.g., flowers),

Shapes (e.g., triangles), or both

Options: Only Identical Objects, enabled or disabled

Levels

7 levels. Levels 1 through 3 use number range 1–10, with difficulty increasing by adding pictures and then by allowing non-identical objects. Levels 4 and 5 use range 1–20; Levels 6 and 7 use 1–100.

3.2.2 SHOW ME COUNTING

In this activity the learner is asked to count out a certain number of objects. The learner counts out by clicking on the icon of the object on the bottom of the screen. Each click will add an object to the screen. If the learner submits an incorrect answer, they will receive feedback saying whether they answered with “too many” or “not enough.”

Activity Settings for Show Me Counting

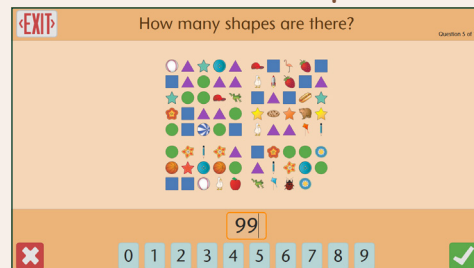
Number Range: 1–10, 1–20, or 1–100

Objects to Count: Shapes, pictures, or both

Levels

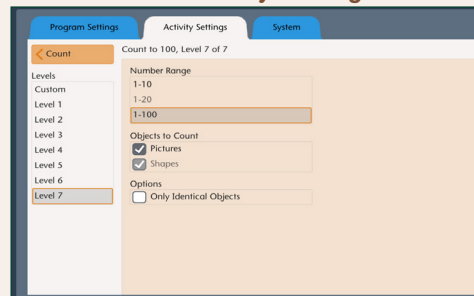
6 levels. Two per number range. Second, fourth, and sixth levels add the “Pictures” option.

Count To 100 - Level 7 sample



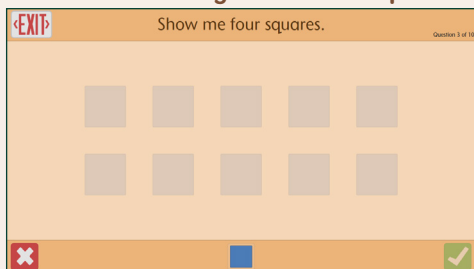
Click number on number line or type on keyboard.

Count To 100 - Activity Settings Menu



Each level has preset parameters. To change any individual parameters, choose Custom level.

Show Me Counting - Level 1 sample



Click on the icon at the bottom of the screen to fill in the proper number of objects.

3.2.3 COUNT PLACE VALUES

This activity explores counting through place values. Each item to count is a representation of its place value: a set of either 100 boxes, 10 boxes, or 1 box. The learner is asked to count the number of highlighted items in each place value. The answer can't be submitted until a number has been entered for each place value that is represented.

Activity Settings for Count Place Values

Maximum Place Value: Ones, Tens, or Hundreds

Levels: 3 levels, one for each maximum place value.

3.2.4 SHOW ME PLACE VALUES

In this activity the learner is given a number to make by selecting the proper amount for each place value. For “234,” the learner clicks the hundreds position two times, the tens position three times, and the ones position four times to create the given number. Clicking the red “X” will clear all place values. If the answer is incorrect, the learner is told if their answer is “too much” or “not enough” and the screen resets.

Activity Settings for Show Me Place Values

Maximum Place Value: Ones, Tens, or Hundreds

Levels: 3 levels, one for each maximum place value.

Count Place Values - Level 3 sample

Click a number for each place value, one at a time.

Show Me Place Values - Level 2 sample

Click on the boxes to highlight them.

3.3 COMPARE

Math Skills Learned

- Know the relationships between larger and smaller numbers
- Understand the meaning of the greater than, less than, and equal to symbols ($>$, $<$, and $=$)
- Compare numbers represented in different ways such as numerals, dice, dominoes, coin values, and more
- Determine which symbol ($<$, $>$, $=$) is appropriate for a number fact ($3+4 ? 6-3$)
- Identify which set of objects has more or fewer objects in it

Two Activities

3.3.1 MORE OR LESS

In this activity, the learner compares two numbers and selects which one is more or which one is less.

The numbers come in many different forms:

standard numerals, number words, number facts, sets of objects, coin values, dominoes, dice, and fractions. Questions only compare like forms; that is, learner will not be asked to compare dominoes to fractions.

Activity settings for More or Less

Max: Maximum number that will be asked about: 10, 20, or 100.

Types: This parameter determines which forms of numbers can be used in a question. Any or all number forms can be selected by checking the box.

Levels

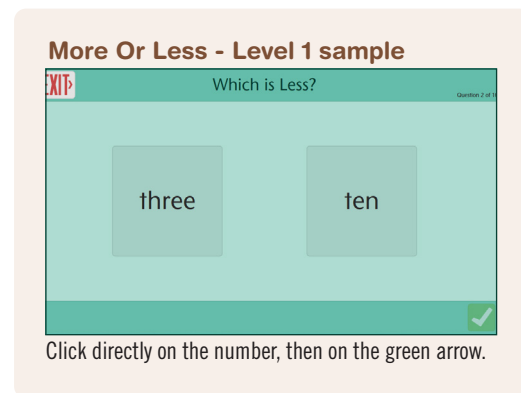
9 levels. Preset parameters:

Level 1: Max number 10, with numerals and number words

Level 2: Max number 10, with sets of objects and dice

Level 3: Max number 10, with math facts, dominoes, and coins

Levels 4–6 and 7–9 follow the same pattern with max numbers of 20, then 100



3.3.2 CHOOSE <, =, or >

In this activity the learner compares numbers by selecting the greater than, less than, or equal to symbol.

Activity settings for Choose <, =, or >: same as “More or Less”

Choose <, =, or > - Level 9 sample

Click on the >, =, or < symbol to answer.

3.4 SEQUENCE

Math Skills Learned

- Understand the relative size of numbers
- Continue or complete a number pattern
- Count forwards and backwards
- Count by intervals such as 2s, 3s, 4s, 5s, 10s (skip count)
- Use ordinal numbers to identify positions of objects in a sequence
- Order numbers up to 100

Three Activities

3.4.1 WHAT COMES NEXT

A number sequence with one empty box is shown. Learner completes the sequence, using number line or keyboard.

Activity settings for What Comes Next

Number Range: 0–10, 0–20, or 0–100

Sequence By: Which number the sequence will count by. The learner can be asked to count by 1s or skip count

by 2s, 3s, 4s, 5s, or 10s to complete the sequence.

Sequence From: Low to high or high to low. If both boxes are checked, the program will randomly select an order for each question.

Levels: 7 levels; combinations of all three sets of parameters.

What Comes Next - Level 1 sample

Click number on number line or type on keyboard.

3.4.2 ORDINALS

The learner selects an object based on their ordinal placement, e.g., picking out the third object in a sequence of five.

Activity settings for Ordinals

Number of Objects: Value can be 3, 5, of 10. The objects in a sequence are identical.

Options: Show Cardinal Numbers. When this is checked, numbers will appear below the corresponding objects in a sequence. Helpful for learners who are new to ordinals.

Levels: 6 levels. Two per Number of Objects parameter. Second, fourth and sixth levels do not show cardinal numbers.

3.4.3 PUT THEM IN ORDER

Numbers are placed randomly on the screen. Learner clicks on the number itself to place it in blanks at the top.

Activity settings for Put Them in Order

Number Range: 0–10, 0–20, or 0–100

Sequence By: 1s, 2s, 3s, 4s, 5s, 10s, or Random Sequence. Random Sequence does not use skip count patterns.

Sequence From: Low to high or high to low

Sequence Length: How many numbers will appear on the screen. Values are 3, 5, or 10.

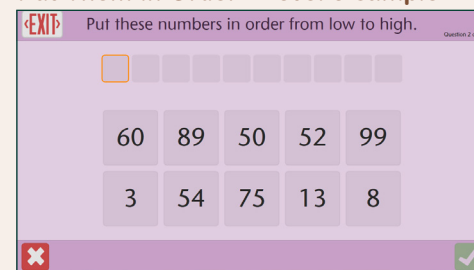
Levels: 9 levels, combining four of the values listed. Only level 9 checks the “Random Sequence” box.

Ordinals - Level 3 sample



Click the correct object to answer.

Put Them In Order - Level 9 sample



To answer, click on numbers. NOTE: This is a Level 9 question. Level 1 is 3 numbers in 0–10 range.

3.5 MONEY

Math Skills Learned

- Learn the value of all coins and bills
- Recognize different combinations of bills and coins can reach the same total
- Find the value of a given combination of coins and/or bills
- Use appropriate notation (ex. 72¢, \$1.39)
- Solve problems using a combination of coins and bills

Two Activities

3.5.1 COUNT MONEY

The learner is shown a combination of bills and/or coins and asked to determine the total value. Can use number line or keyboard. If the value is less than \$1.00, the student answers in cents; if it is \$1.00 or more, the learner must include the decimal point.

Activity settings for Count Money

Number of Coins/Bills: The maximum number of coins and/or bills that will appear.

Values: 3, 6, 9

Include: Check boxes to include. Penny, nickel, dime, quarter, one dollar, five dollar, ten dollar or twenty dollar bill.

Levels

5 levels.

Level 1: 1–3 coins

Level 2: 1–3 bills

Level 3: 1–3 combination of coins and bills

Level 4: 1–6 combination

Level 5: 1–9 combination

3.5.2 MAKE THIS AMOUNT

The learner is asked to make a certain amount of money, by clicking on bills and coins on the bottom of the screen. If a submitted answer is incorrect, the learner will receive feedback indicating what they answered and whether the entered amount is “too much” or “not enough”.

Activity settings and Levels for Make This Amount: The same as “Count Money,” but applied differently. With a larger number of coins and bills, the amount can often be reached in more than one way, and the complexity is increased.

Count Money - Level 3 sample

Click number and decimal point on number line or type on keyboard.

Make This Amount - Level 5 sample

Click on the coins and/or bills to add up to the amount.

Make This Amount - Level 5 settings

3.6 TIME

Math Skills Learned

- Tell time on an analog or digital clock
- Understand the same time can be depicted in both analog and digital
- Differentiate between the minute hand and hour hand of a clock
- Apply addition and subtraction in a real-life situation like telling time

Three Activities

3.6.1 FIND THE TIME

The learner is shown a clock, either analog or digital, and three clocks underneath it. The learner clicks on which of the three clocks show the same time as the clock in the question.

Activity settings for Find the Time

Question Clock: Analog or digital

Answer Clock: Analog or digital

Hours: First option is 12:00/3:00/6:00/9:00;
second option is any hour

Minutes: Options are top of the hour (:00), top and bottom of the hour (:00 and :30), every :15, every :10, every :05, and every :01. NOTE, :00 option is only available as Custom setting.

Levels: 4 levels combining the four parameters.

Only Level 4 has the “Any Hour” option.

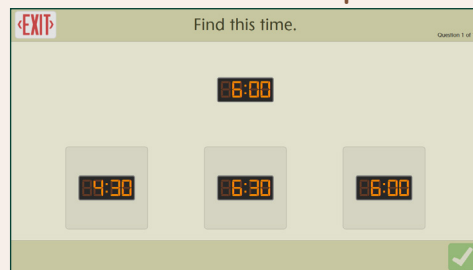
3.6.2 WRITE THE TIME

In this activity, the learner is shown a time and enters the same time in empty boxes. The question can be either analog or digital, depending on the level. The empty box for hours is automatically selected. Tab or click to select minutes box.

Activity settings for Write the Time: same as “Find the Time,” except without Answer Clock option.

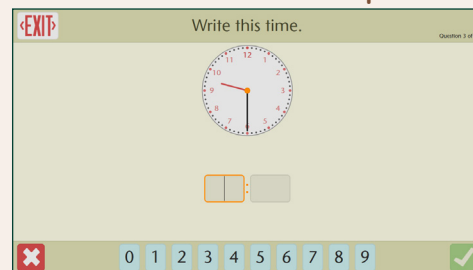
Levels: 4 levels combining the three parameters

Find The Time - Level 1 sample



Click on one of the three clocks to answer the question.

Write The Time - Level 2 sample



Click number on number line or type on keyboard. To go from hours to minutes, click in box or hit tab key.

3.6.3 ELAPSED TIME

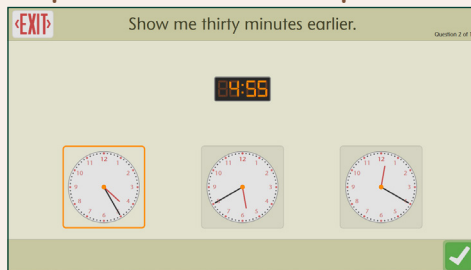
In this activity, the learner is asked to select one of three choices indicating a time later or earlier than the question clock.

Activity settings for Elapsed Time: Same as “Find the Time,” plus:

Elapsed Time: Options are :10, :15, :30, 1:00

Levels: 4 levels combining the five parameters

Elapsed Time - Level 4 sample



Click on one of the three clocks to answer the question.

3.7 NUMBER LINE

Math Skills Learned

- Understand the meaning of a number line
- Use words to describe relative position of numbers on a number line (ex. 3 is 2 less than 5)
- Locate the position of an object along a number line
- Count forwards or backwards from a known point on a number line
- Locate fractions and decimals on a number line from 0 to 1

Two Activities

3.7.1 SHOW ME THE NUMBER

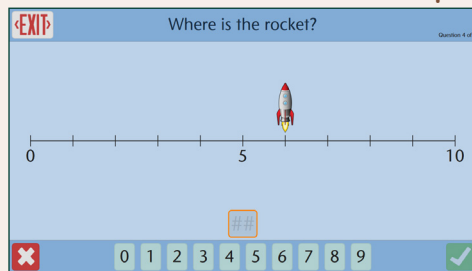
In this activity, the learner locates an object along a number line, enters a number in the box and clicks the green check mark to submit the answer.

Activity settings for Show Me the Number

Number Line Range: Start and end numbers of number line. Options are: 0 to 10, 0 to 20, 0 to 100, 0 to 1000, 0 to 1 decimals, and 0 to 1 fractions. For 0 to 1 decimals, there is a tick mark every 0.1. For 0 to 1 fractions, there is a tick mark every eighth.

Levels: Each level adds a slightly more complex number line to include in the questions.

Show Me The Number - Level 1 sample



Click number line at bottom or type on keyboard.

3.7.2 PLUS OR MINUS

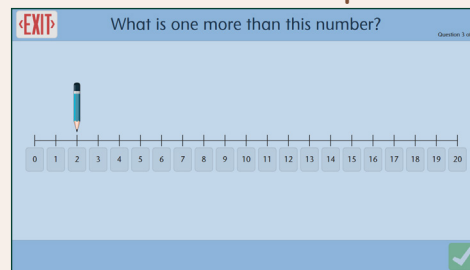
This activity asks the learner to find a number a certain amount more or less than where the object is located, and click that number in the number line.

Activity settings for Plus or Minus

Number Line Range: 0 to 10 or 0 to 20. All numbers are marked on the line.

Levels: 2 levels. First uses 0 to 10 only, second uses both.

Plus Or Minus - Level 2 sample



Click directly on the number line to answer.

3.8 MATH FACTS

Math Skills Learned

- Understand the meaning of the symbols $+$, $-$, \times , \div , and $=$
- Understand the concrete meaning of addition, subtraction and multiplication by using support graphics
- Solve simple multiplication and division problems
- Zero multiplied by any number is zero
- Understand the different orientations used to express simple arithmetic questions
- Identify that the same question can be asked as a word problem or a standard problem with numbers and symbols

Notes About Math Facts

Understanding the simple operations is essential in mathematics. Many skills from this category will appear in other categories as well.

An important aspect of developing a good foundation in number sense is being able to recall basic facts from memory without any calculation. This is known as automaticity, and gaining this skill will go a long way in helping a student succeed in math. The reports indicate the average time per question for each activity. A decrease in average time per question will indicate the learner's progress in committing certain facts to memory.

Four Activities

3.8.1 ADD

Activity settings

Number Range: Highest number used. Options:
1–10, 1–20, or 1–100.

Options

- Include zero. Determines whether zero can be included as a number in the questions.
- Include support graphics.

NOTE: These boxes are checked in all nine levels, but can be unchecked in Custom level.

Question Layout: Vertical layout; horizontal layout; word problem.

Levels

9 levels. Level progression is the same for each number range.

Level 1: Vertical layout

Level 2: Vertical layout or horizontal layout with question mark at end

Level 3: Horizontal layout with question mark in the middle, or word problem.

3.8.2 SUBTRACT

Activity settings

Number Range: Highest number used. Options:
1–10, 1–20, or 1–100.

Options

Include Zero and Include Support Graphics both checked in all levels

Question Layout: Vertical layout; horizontal layout; word problem.

Levels

9 levels. Level progression is the same for each number range.

Level 1: Vertical layout

Level 2: Vertical layout or horizontal layout with question mark at end

Level 3: Horizontal layout with question mark in the middle, or word problem.

Add - Level 9 sample

Andre has twenty caps.
Brian has fifty four caps.
How many caps do they have?

Click number line at bottom or type on keyboard.

Add - Level 9 settings

Program Settings | Activity Settings | System

Math Facts | Add, Level 9 of 9

Levels: Custom, Level 1, Level 2, Level 3, Level 4, Level 5, Level 6, Level 7, Level 8, Level 9

Number Range: 1-10, 1-20, 1-100

Options: ☒ Include Zero, ☒ Include Support Graphics

Question Layout: ☐ $2 + 3 = ?$, ☐ $2 + 3 = 3$, ☒ Word Problem

Subtract - Level 1 sample

2
- 0
=

Click number line at bottom or type on keyboard.

3.8.3 MULTIPLY

Activity settings

Number Range: 1–3, 1–5, or 1–10

Options: Include Zero and Include Support Graphics both checked in all levels

Question Layout: Vertical layout, horizontal layout.

No word problem.

Levels: 9 levels. Same as “Add” but no word problems.

3.8.4 DIVIDE

Activity settings

Number Range: 1–3, 1–5, or 1–10

Options: Include Support Graphics checked in every level. Include Zero not an available option.

Question Layout: Vertical layout, horizontal layout. No word problem.

Levels: 9 levels. Same as “Add” but no word problems.

Multiply - Level 4 sample

Question 2 of 10

3
x 3
—
[]

0 1 2 3 4 5 6 7 8 9

Click number line at bottom or type on keyboard.

Divide - Level 7 sample

Question 1 of 10

16
÷ 2
—
[]

0 1 2 3 4 5 6 7 8 9

Click number line at bottom or type on keyboard.

3.9 FRACTIONS

Math Skills Learned

- Recognize that there are quantities less than a whole
- Understand that the total of equivalent fractional parts, e.g., 2 halves, equals a whole
- Understand the whole is equal to 1
- Compare the relative values of fractions
- Understand a single fraction can be expressed in different ways, e.g., 1/2 and 2/4

Four Activities

3.9.1 FIND THE FRACTION

The learner is asked to identify the fraction depicted by a graphic. The denominator is always the total number of pieces, and the numerator is the highlighted pieces.

Activity settings for Find the Fraction

Include: Determines which denominators can be included in a question. Options: halves, thirds, fourths, sixths, eighths and twelfths

Fraction Graphic: Determines how the fraction is graphically depicted: pieces of a circle or a certain number of squares being highlighted.

Both are selected in all six levels.

Levels: 6 levels with these parameters.

Level 1: Halves. Answer choices: 0, $\frac{1}{2}$, and 1

Level 2: Thirds. Answer choices: $\frac{1}{3}$, $\frac{2}{3}$, 0, and 1

Level 3: Fourths. Answer choices: $\frac{1}{4}$, $\frac{2}{4}$, and $\frac{3}{4}$

Level 4: Fourths and sixths. This is the first level that includes multiple denominators.

Level 5: Fourths, sixths, or eighths

Level 6: Fourths, sixths, eighths, or twelfths

3.9.2 WRITE THE FRACTION

In this activity, the learner enters the numerator and denominator of the fraction that is depicted by the graphic. The empty box for the numerator is automatically selected, but the denominator box must be manually selected by clicking in box or tabbing. When a number is entered in both boxes, the green check mark can be clicked.

Activity settings and levels for Write the Fraction: same as “Find the Fraction”

Find The Fraction - Level 6 sample

Click number line at bottom or type on keyboard.

Write The Fraction - Level 4 sample

Click number line at bottom or type on keyboard.

3.9.3 COMPARE FRACTIONS

In this activity, the learner is shown two fractions, and the “<”, “>”, and “=” signs. The learner chooses the sign that correctly compares the two fractions.

Activity settings for Compare Fractions

Include: Same as “Find the Fraction”

Options: Check box for Equal Denominators

Levels: 4 levels with these parameters.

Level 1: All denominators except for halves can be used in questions. Equal Denominators is checked.

Level 2: Denominators may be equal or unequal.

Halves, fourths, or eighths

Level 3: Denominators may be equal or unequal.

Thirds, sixths, or twelfths

Level 4: All fractions are possible.

3.9.4 ADD FRACTIONS

This activity uses a high-level concept. Learner is asked to add fractions together. The maximum common denominator will be 12 and the numerator will never exceed the denominator, nor will any fraction have zero in the numerator.

Activity settings for Add Fractions

Include: same as “Find the Fraction”

Options: Equal Denominators check box

Levels: 4 levels with these parameters.

Level 1: Fractions can be thirds, fourths, sixths, eighths or twelfths, but all have equal denominators.

Level 2: Fractions can be halves, fourths, or eighths, and may or may not have equal denominators.

Level 3: Fractions can be thirds, sixths, or twelfths, and may or may not have equal denominators.

Level 4: Can be any combination of fractions, as long as the common denominator is no higher than 12.

Compare Fractions - Level 2 sample

Click number line at bottom or type on keyboard.

Add Fractions - Level 1 sample

Click number line or type on keyboard. Tab or click in box to add denominator.

Section 4

Customizing Number Sense

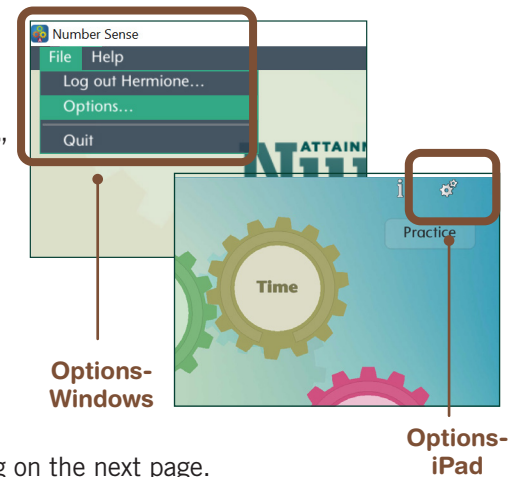
Number Sense can be used right out of the box, but if you wish to customize it to suit your particular learner, all of these features can be adjusted:

- The categories which are active
- The activities which are active
- Levels to set for the first session; if Custom level, the parameters to change
- Practice or test mode
- System settings such as turning sound off or on
- Scanning settings

4.1 MAIN OPTIONS WINDOW

To find the Options menus in Windows, bring cursor to the top of the screen to reveal a hidden banner. Click on “File,” then “Options.”

To find the Options menu on iPad, tap the gears at upper right corner of the screen.



User Section

The “User” section includes creating/modifying a user list, plus “Settings” and “Results” for each individual user. Users, Settings and Results are described in detail, starting on the next page.

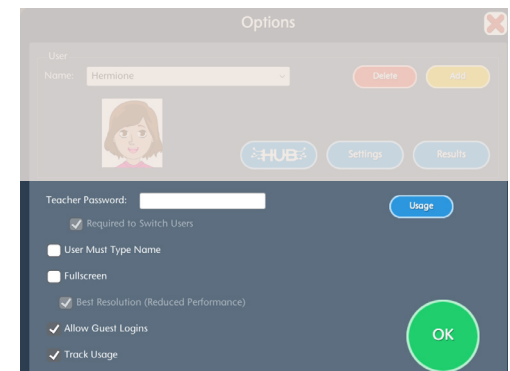
Program Parameters

Below the “User” section are some general parameters for the program.


Teacher Password (optional). If password is filled in, you may check or uncheck the requirement for password to switch users.

User Must Type Name—If selected, there will not be a pulldown list on login menu.

Fullscreen—can be disabled; however, running fullscreen is recommended at all times.



Program Parameters in main options window.

 Apps opened on the Web omit the main Options window. When **File-Options** is selected, the first screen shows settings for the current user and the current open app.

 Changing the settings for **Guest** is equivalent to changing default settings. They will apply to anyone who uses the program without a named login.

Allow Guest Logins—If this feature is disabled, only named users can use the program

Track Usage—This is not specific to any user, but a general record of the amount of time used on particular days. The **Usage** button will show you a chart of usage.


4.2 USERS

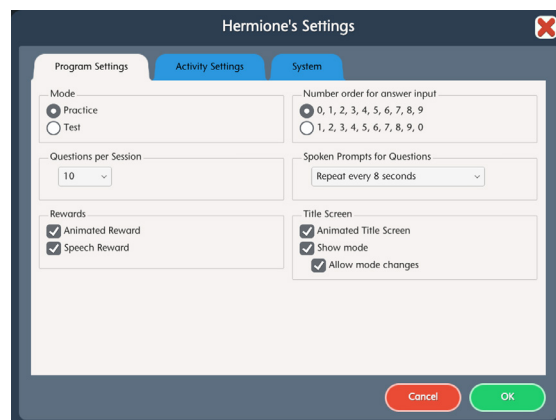
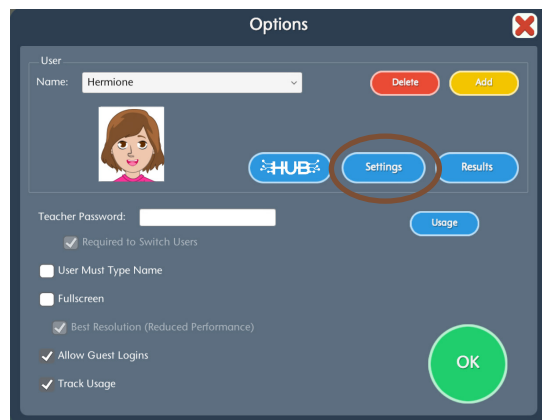
The program can store data for an unlimited number of users. The settings for each user are independent, but only one user (or a guest) can be active at a time. Use the **Add** and **Delete** buttons to add or remove users. The program will ask you to set password and avatar; click **Skip** to bypass. After an avatar is selected, it can be customized with the **Edit** button.



4.3 SETTINGS

Click the **Settings** button in the Main Options window to bring up the **Settings** windows, each accessed by its tab. This will change settings for the current named user or for Guest.

NOTE: The **HUB** button , to the left of **Settings**, is for syncing student accounts online. See p. 31.



Click **Settings** in the main Options window to bring up the tabs for three menus: Program Settings, Activity Settings, and System Settings.

Section 4 Customizing Number Sense

The screenshot shows a settings window titled "Hermione's Settings" with a close button (X) in the top right. There are three tabs: "Program Settings" (selected), "Activity Settings", and "System". Under "Program Settings", the "Mode" section has two radio buttons: "Practice" (selected) and "Test". Below this, "Questions per Session" is a dropdown menu set to "10". The "Rewards" section has two checked checkboxes: "Animated Reward" and "Speech Reward". The "System" tab is partially visible, showing "Number order for answer input" with two radio button options (0-9 and 1-0) and "Spoken Prompts for Questions" with a dropdown set to "Repeat every 8 seconds". At the bottom are "Cancel" and "OK" buttons.

The first tab brings up **Program Settings**, which apply to all activities in the program for the named user or Guest.

4.3.1 PROGRAM SETTINGS TAB

These settings are applied to all categories and activities for this user.

Level Mode—There are two different level modes, selected with check box.

Practice mode: This mode allows three attempts to answer a question. After three incorrect answers, the program will provide the correct answer and move on to the next question.

Test mode: This mode allows only one attempt to answer a question. If the answer is incorrect, the correct answer will be provided and the program will move on.

Questions per Session—The number of questions per session. The options are 5, 10, 15, 20, 50 or 100 questions. This selection applies to both Practice mode and Test mode.

Rewards—both spoken and animated rewards can play after a correct answer.


Animated Rewards: Pulldown menu to select type of animation or disable it.

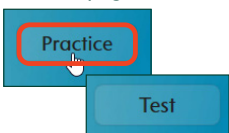
Child Rewards: These animations include balloons, butterflies, rockets, and more.

Teen/Adult Rewards: When this is selected, one of several colorful graphics will appear.

Speech Reward: Check box. When this is selected, a positive phrase such as “That’s Correct!” or “Good for you!” will be played after a question is answered correctly.

NOTE: Answer feedback, acknowledging both correct and incorrect answers, is built in. There is no option to turn it off.

 If **Allow Level Mode changes** is enabled, the Practice button at top right toggles between “Practice” and “Test.” See next page.



Section 4

Customizing Number Sense

The screenshot shows the 'Hermione's Settings' window with the 'System' tab selected. A red box highlights the 'Number order for answer input' section, which contains two radio button options: '0, 1, 2, 3, 4, 5, 6, 7, 8, 9' (selected) and '1, 2, 3, 4, 5, 6, 7, 8, 9, 0'. Below this is a 'Spoken Prompts for Questions' dropdown menu set to 'Repeat every 8 seconds'. The 'Title Screen' section has three checked checkboxes: 'Animated Title Screen', 'Show mode', and 'Allow mode changes'. At the bottom are 'Cancel' and 'OK' buttons.

Number order for answer input—This parameter determines the placement of the numeral “0” on the number line. Numeral “0” can come either before “1” or after “9”. This setting applies to all categories and activities.

Spoken Prompts for Questions—Pulldown menu with options for hearing the question aloud.

None: The question is not read aloud at all.

Automatic, no repeat: The question is read aloud once, when the question appears.

Repeat every 5, 10, or 15 seconds: The question will be repeated aloud after the selected number of seconds until an answer is submitted.

Title Screen—Three check boxes to enable or disable.

Animated Title Screen: When enabled, gears rotate on the title screen.

Show level mode: When enabled, the words “Practice” and “Test” will be visible at top right, with the current mode circled.

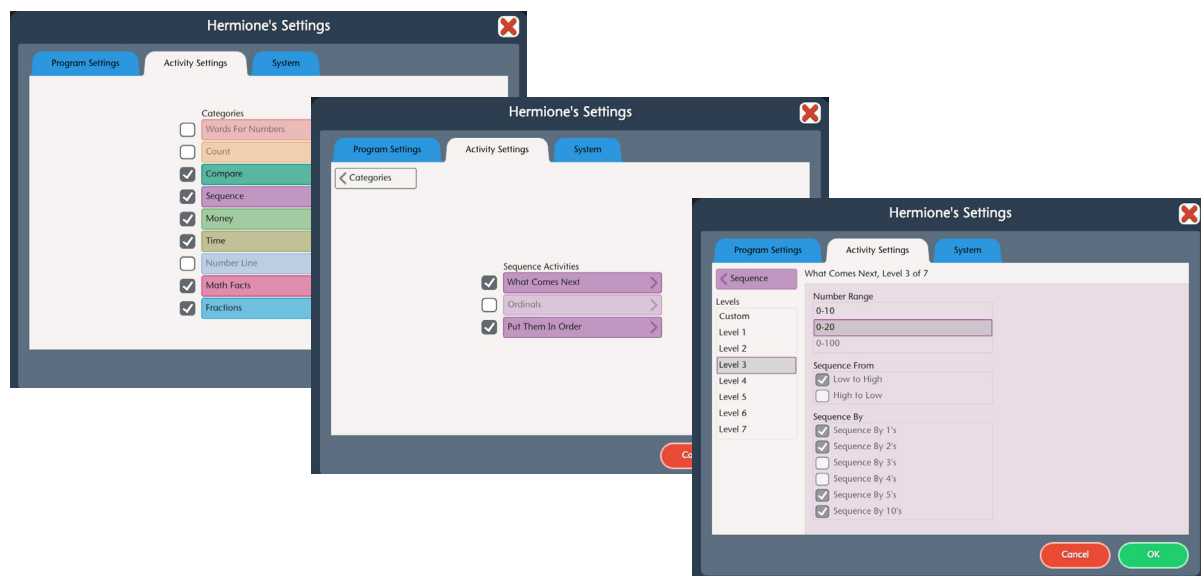
Allow level mode changes: Option only appears when “Show level mode” is enabled. Permits anyone to change the mode while on the title screen.

NOTE: It is recommended to disable this option to avoid accidental switching. Also, changing the mode removes the visible progress results for that session. (Results data is unaffected.)

 Click on the text at any time to hear the question read aloud.

Section 4

Customizing Number Sense



In the **Activity Settings Tab**, select or unselect categories on the first screen (*top*). Click directly on the category to see its list of activities (*middle*). Click directly on an activity to see its list of levels (*bottom*).

4.3.2 ACTIVITY SETTINGS TAB

Categories—Select or deselect a category with check box. If a category is deselected, it will not appear on the title screen. Rolling over the category name will show all the activities that are active.

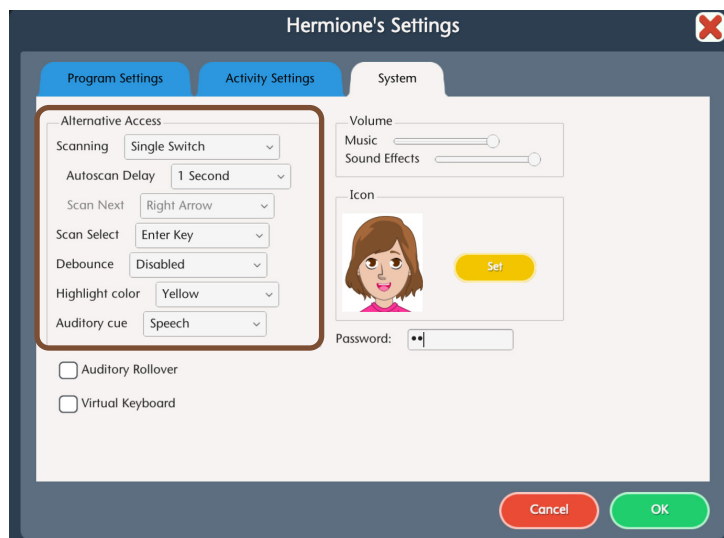
Activities—Select or deselect an activity with check box. Questions asked in a session will only consist of activities that are checked. Click on an activity to view/change the settings and parameters for each level. These are detailed in **Categories** section, pages 7–21.

Levels—The program will begin on the level that is highlighted in the settings screen and progress normally if using auto level progression. All activities start at level 1 by default. Each numbered level has built-in settings that cannot be changed. Choose Custom Level to change a specific setting.

Custom Level—Use this level to change any activity settings. The customized preferences apply to both Practice Mode and Test Mode.

NOTE: When Custom Level is selected, auto level progression does not occur.

i On the iPad, Scan Next and Scan Select are replaced with **Device**. Options are:
* Attainment Switch
* RJ Cooper Switch
* Bluetooth Space/Enter
* Ion iCade Core Arcade



4.3.3 SYSTEM SETTINGS TAB

Alternative access—Number Sense is accessible with a mouse, touch screen, interactive whiteboard, and switches. Switch access is built in through the use of scanning. Settings for scanning and switches can be changed in this tab.

Scanning: Scanning can be set as single switch (automatic) or double switch (manual).

Autoscan Delay: Select the length of time the cursor dwells on each selection. (Single switch only)

Scan Next: Keyboard options for going to next selection. (Double switch only)

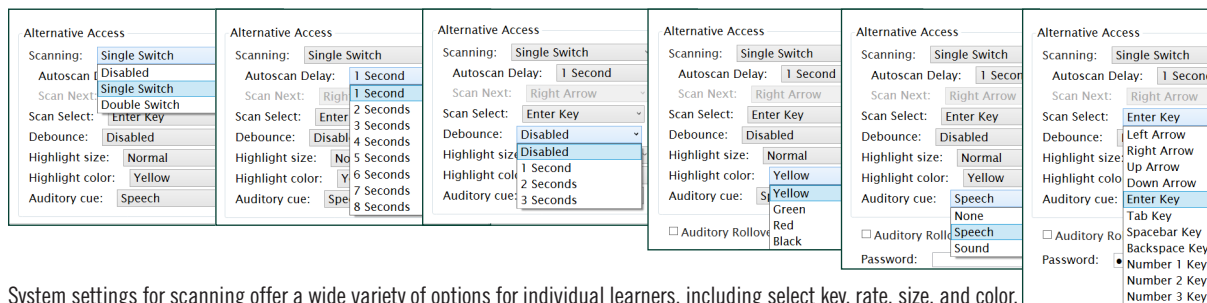
Scan Select: Keyboard options for making selection.

Debounce: The length of time in which repeated switch input is ignored.

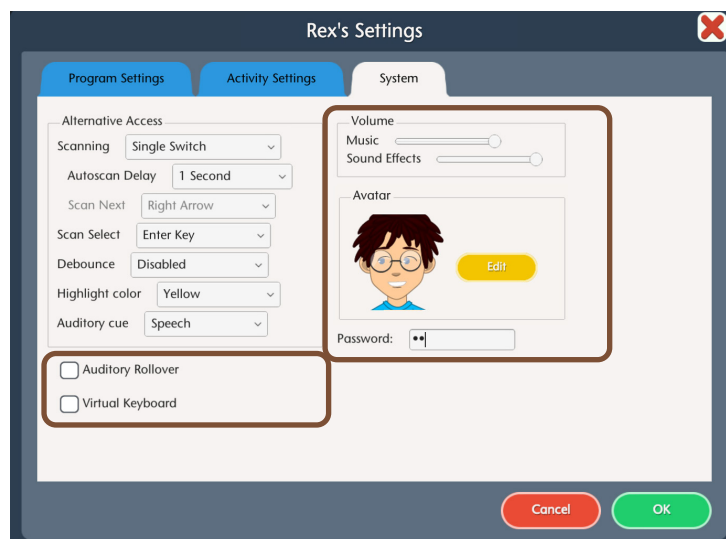
Highlight size: The highlight appears as an outline around each selection. Size can be changed.

Highlight color: Yellow by default. Can be changed to green, red, or black.

Auditory cue: Speech by default. Can be changed to Sound, or disabled with None.



System settings for scanning offer a wide variety of options for individual learners, including select key, rate, size, and color.



Auditory Rollover—When this is checked, the program will read whatever the cursor is hovering over after 1.5 seconds.

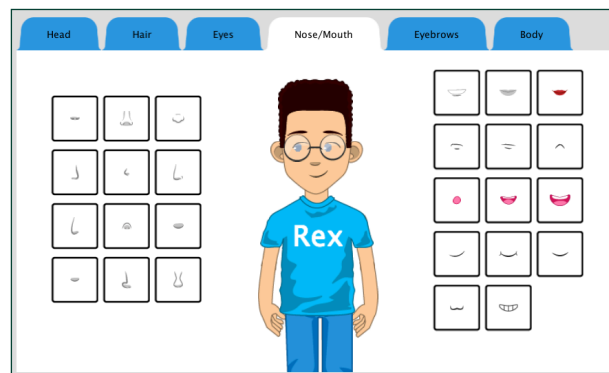
Virtual Keyboard (*Windows/Mac only*)—Check to show an onscreen keyboard.

Show Touches (*iPad only*)—A white circle appears on the screen indicating a tap or drag.

Sounds—Music and sound effects can be made softer or turned off. In **Number Sense**, speech rewards can be turned off in Program Settings, but answer feedback cannot.

Avatar—Select **Edit** to make changes to an existing avatar, including: Head shape; eyes, nose and mouth features; skin, hair, eye and shirt color; and accessories.

Password (*Windows only*)—Password can be set or changed for an existing user here.



A student avatar can be customized when created, or from System Settings.

4.4 RESULTS

The data of all sessions can be found for each user by clicking the **Results** button in the Main Options window. The results are automatically sorted by category, but can be sorted by date.

Viewing the Report

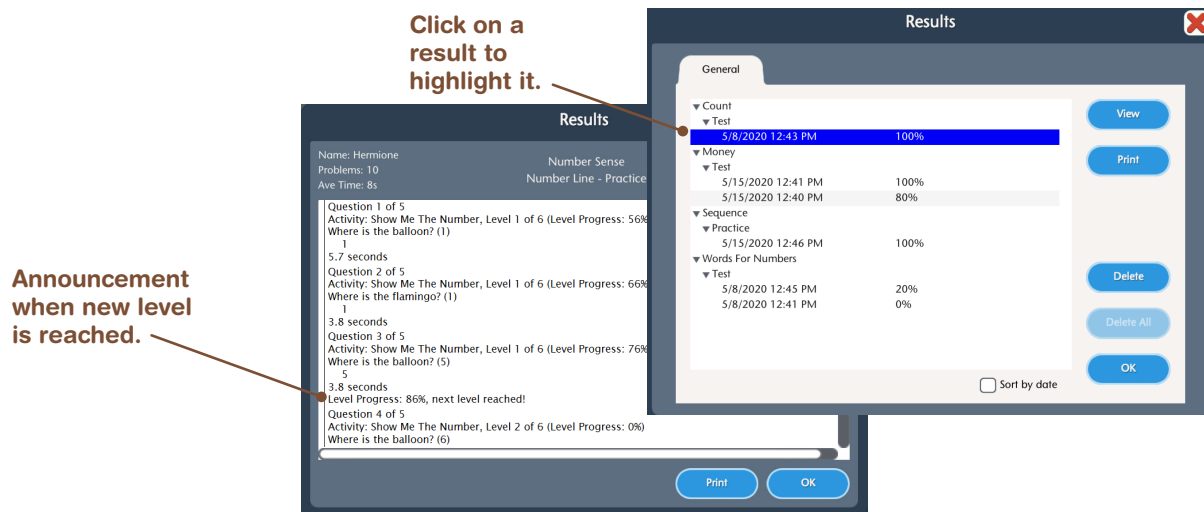
Results are recorded from any session in which the learner attempts at least one question. These can be viewed at any time by clicking the **Results** button in the Options window. The results displayed are only for the user whose name is in the User Bar. The results are sorted by category automatically, but can be sorted by date by clicking the “sort by date” box. Results for each category can be collapsed by clicking on the black triangle next to the category name.

Click on a result to highlight it. Then the **View**, **Print**, and **Delete** buttons become clickable. Deleting results cannot be undone. Double clicking on a result does the same thing as clicking “View”.

Viewed information for each result includes question number, activity, progress, correct and incorrect answers, and time spent on the question.

If a correct answer causes the program to advance to the next level, **Level Progress: 80%, next level reached!** will be shown in the results report.

The results page can be printed by clicking the **Print** button and then confirming by clicking “Print” again in the window that pops up. Clicking the red **X** or **OK** will take you back one level.



Incorrect answers
designated with
red “x”

Results

Name: Hermione
Problems: 10
Ave Time: 8s

Number Sense
Number Line - Practice

Score: 90%
Date: 5/15/2020
Time: 2:37 PM

Question 1 of 10
Activity: Plus or Minus, Level 1 of 2 (Level Progress: 10%)
What is three more than this number? (6)
☒ 6
4.3 seconds

Question 2 of 10
Activity: Show Me The Number, Level 2 of 6 (Level Progress: 0%)
Where is the kite? (6)
☒ 5
☒ 6
13.1 seconds

Question 3 of 10
Activity: Plus or Minus, Level 1 of 2 (Level Progress: 20%)
What is four less than this number? (2)
☒ 2
3.9 seconds

Print OK

Analyzing the Report

There are several things to look for when viewing a Results report. Does the learner exhibit any of the following errors in their answers?

- The learner always selects the answer on **one side of the screen**. Make sure the computer is set up so the learner can navigate all areas of the screen.
- The learner **reverses digits** when typing the answer. For example, 683 instead of 638. Keep an eye out for other possible indicators of a learning disability.
- The numbers are correct but there **aren't enough or are too many**. For example, 28 instead of 283. Perhaps the learner doesn't sufficiently understand place value.
- In Math Facts, **correct for one operation but not the other**. For example, putting 5 for " $2 \times 3 = ?$ ". The learner may not understand the signs for the different operations.
- The learner answers correctly when numbers are **within a certain range**. For example, when numbers are under 20. More off-computer activities may be required to improve understanding of larger numbers.
- The learner answers questions incorrectly **when 0 is involved**. The learner may need more off-computer activities practicing adding zero objects or leaving zero objects.

In general, watch for any **patterns** to incorrect responses.

In addition to correct or incorrect, the **average time per question** can be important. Watch to see if the learner is getting faster on a specific activity as they practice. However, be sure the learner is not giving more incorrect responses as the average time per question decreases.

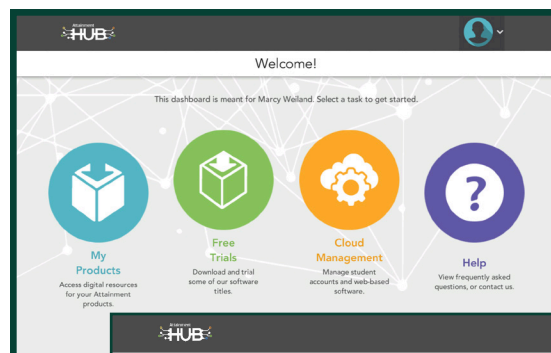
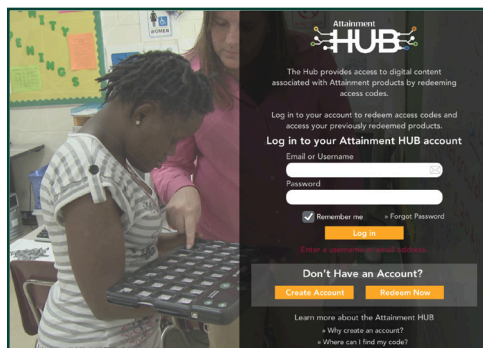
4.5 THE ATTAINMENT HUB

The **Attainment HUB** provides web delivery of software and other learning materials. The Hub has a number of functions:

- A purchased product can be downloaded to a computer or device via access code provided.
- With a web-based subscription, Attainment Cloud apps can be accessed remotely by multiple students, and results monitored by their teachers.
- Attainment offers free trials of many apps. These versions have full functionality but limited content, e.g., a single chapter or lesson, to get familiar with an app before buying.
- Logging in to the Hub from inside an app will sync its Cloud user data.

The Hub's URL is <https://hub.attainmentcompany.com> and first-time users will create an account.

Once logged in, select from three options: Download a product; download a free trial; access web-based app subscription or manage student accounts on the Cloud.



Logging into the Attainment HUB (*above left*) brings up the launch screen (*above right*). The Cloud Management option will only be available to users with web-based subscriptions. Cloud Management is a menu for setting up student accounts, assigning apps to them, enabling home use, and monitoring their progress.



If you have a problem running the **Number Sense** software or app, please call or email **Attainment Technical Support**. If possible, have your computer nearby while we discuss solutions.

You can speed the process if you collect some basic information ahead of time:

- Using Web-based or downloaded stand-alone version?
—If Web-based, which Web browser are you using?
- Are you on a Windows, Mac, iOS, or Android device?
- What operating system are you running?
- What was the error and type of error message, if any?
- What triggered the problem?
- Can you duplicate the problem?

Tech Support is available weekdays from 9 am - 5 pm (CST)

phone: 1-800-327-4269 or 1-608-845-7880

email: techsupport@AttainmentCompany.com

website: www.AttainmentCompany.com

We welcome your questions or comments.



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Neil Peiffer, Julie Denu, Don Bastian, Alex Bastian

Programming

Neil Peiffer, Scott Meister

Graphics

Heidi Barnhill, Ken Becker

Music

Ryan Barndt

Voice Talent

Jon Karbo

User Guide

Alex Bastian, Marcy Weiland