Learning and Teaching with Learning Trajectories

[LT]^2

USER GUIDE

Marsico Institute
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Getting Started

Logging On

Go to the LT2 home page at https://www.learningtrajectories.org

• Watch introductory videos on LT2 and Learning Trajectories.
• Log in if you are a returning user or register to create your account.

Learning and Teaching with Learning Trajectories [LT]^2

[LT]^2 is a web-based tool for early childhood educators to learn about how children think and learn about mathematics and how to teach mathematics to young children (birth to age 8). The website provides teachers with access to information about Learning Trajectories for math. Teachers can also review short video clips of children’s thinking along the math Learning Trajectories. Users can access hundreds of classroom activity ideas to support children’s development along the math trajectories.

Watch the video below to learn more! Then review our Learning and Teaching with Learning Trajectories [LT]^2 User Instructions to learn more about how to set up your account and use the site.

Log In or Register
Create a New Account

Create new account

First Name *
Test

Last Name *
Teacher

Photo
Optional. Upload your photo to be used with your class. You may add or edit this later.
One file only.
2 MB limit.
Allowed types: png gif jpg jpeg.
Choose file

E-mail *
A valid email address. All emails from the system will be sent to this address. The email address is not made public and will only be used if you wish to receive a new password or wish to receive certain news or notifications by email.

test.teacher@edu.edu

Password *

Password strength: WEAK

Confirm password *

Passwords match: YES

Create new account

Recommendations to make your password stronger:
- Make it at least 12 characters
- Add uppercase letters
- Add numbers
- Add punctuation
Set up a class

A screen that looks like this should automatically pop up* after you have successfully created an account.

Set up your first class

Class Name *
Test's First Class

Grade / Age *
Select a default Grade / Age for this class.
Note: You will be able to change this on a per-student basis.
4 Year Olds

Start Date
09/05/2018
Day this class begins. (Weekly status notifications will begin on this date)

End Date
05/31/2019
Last date of class. (Weekly status notifications will cease on this date)

Save Class & Add Students

*Trouble shooting: If this screen does not automatically populate, try the following:
1. Log out.
2. Close out of [LT]².
3. Go to the “History” tab of your browser.
4. Select “Clear browsing data”. This should reset [LT]² so you are able to set up a class and access the rest of the website.
5. Log in again. The above screen should now pop up.
Adding Children

You can add children one at a time or add a whole class roster with a .csv file.

If you are a parent or educator (e.g. administrator, instructional coach) without a class, create a fake class of 1-3 children. This will fulfill the class requirements of the website and allow you to access the content within the website. After you register and create the class, you do not need to do anything with the class on the website if you do not want.

Option 1: Adding children one at a time

1. Add each student’s name and click “Save” after each student.
2. Repeat for each new student.
Option 2: Adding Multiple Children at Once

1. Click on the button below to add multiple children to the roster at a time.
2. Follow the instructions below to create a .csv file.
Add Multiple Students to Your Class

CSV File
Upload a .csv file in the correct format. Download the example .csv file.

Choose File
Add Students

Creating a CSV file

Microsoft Excel
1. Download the example CSV file and open in Microsoft Excel.
2. Leaving the header row intact, add a new row for each student.
3. Go to the "File" menu and select "Save As."
4. In the "Save as type" menu, select "CSV (Comma delimited) (*.csv)."
5. Click Save (Name the file as you wish).
6. On the first popup, select "OK" and the second popup, select "Yes."
7. Upload your newly created CSV file to add students.

Google Sheets
1. Download the example CSV file and open in Google Sheets.
2. Leaving the header row intact, add a new row for each student.
3. Go to the "File" menu and select "Download as."
4. In the "Save as type" menu, select "Comma-separated values (.csv, current sheet)."
5. Upload your newly created CSV file to add students.
Update Class Details

Now that you have created a class, update the class details if you choose.

- Set the entire class to have a specific screen time limit.
- Set whether children need to use a password, or not, to sign onto games.

Optional: Set email notifications.

- Add an email address to receive notifications for your classroom.

- Add another person to share your classroom account with (e.g. teacher, administrator). This will give that person access to all of the information for the single class (not individual children) you just set up on [LT]². You will need to add that teacher to other classes on [LT]² if you want to have access to those student accounts and progress as well.
Optional: Add details to each student

- Add a headshot or avatar
- Add age/grade and screen time limits unique to each child
• Add a parent, guardian, or other authorized user to the student.

Parent/Guardian Email Addresses for Access
Add one or more email addresses of parents, guardians, etc. to provide access to this student's account. One email address per line please.

+ parent1@du.edu

Add another item

• A three-image password is automatically assigned to each student so they can login to play games. You can update this password, if desire. The unique password allows the games to track individual children’s progress in the games and pick up at the level where they ended for each game.
Print Class Roster

Print a class roster to support children’s ability to independently login to play games.

Select “Print” from your browser’s menu to print this page.
Learning Trajectories

• The Learning Trajectory page includes 17 learning trajectories.
• You can expand or collapse the trajectories by clicking on the green arrow.
• Each trajectory has a brief introductory video explaining what you will find in that trajectory. You can access this video by clicking on the video camera icon next to each trajectory label.
1. Start with any trajectory. If you are unsure where to start, Counting is a good place to start.

2. The trajectory levels highlighted in yellow on the Learning Trajectories page represent the typical age/grade of the class details you entered. If you want a different age/grade level highlighted, just click on it at the top of the Learning Trajectories page. You can change the default age/grade filter at any time for the class by going into the Roster tab and changing class details as noted above.
3. Select a level to start reviewing for your preferred Trajectory. Read the descriptions and watch the developmental video(s) to determine if that is the correct level for some, most, or all of your children. Some of your children may be at the level before or after the typical levels.

4. Level pages will provide one or more developmental video examples. These videos capture a child performing at this level. The captions under the videos help specific exactly what mathematical abilities the child is demonstrating to be at this level.

Counter and Producer (10+)

Counts and counts out objects accurately beyond 10 (usually to 30 or more). Has explicit understanding of cardinality (numbers tell how many). Keeps track of objects that have and have not been counted, even in different arrangements. Writes or draws to represent 1 to 10 (then 20, then 30). Gives next number (usually to 20s or 30s) if allowed to generate a “running start.” Recognizes errors in others’ counting and can eliminate most errors in own counting (point-object) if asked to try hard.

You may see this:

1. Counts a scattered group of 19 chips, keeping track by moving each one as they are counted.

The child correctly counts the scattered arrangement of 15 pennies, keeping track of each one as he moves it. He also knows that there are a total of 15 pennies when asked, “how many.”
5. At the bottom of each “Level Page” are activities (i.e. computer, whole group, small group) to help teach the concepts of this level to your children.

Help Your Student Become a Counter and Producer (10+)

Computer Activity

Small Group

6. Select any activity to view a video of the instruction or view instructions and materials.

Count Towers (Beyond 10)

Children stack as many objects (e.g., cans) as they can, and count them to see how many they stacked. Children are challenged by estimating which objects will stack the highest.

Directions
1. Set up stations with different objects to stack. Instruct them to make towers with different types of objects, such as cans, or whatever allows them to make stacks of more than 10 objects.
2. Challenge children to estimate (make a smart guess) how many they can stack and then build a tower as high as they can.
3. To extend even higher, have children make pattern "walls." They build a pattern block wall as long as they can. This allows them to count to higher numbers.

Variations:
- Pairs can play a game in which they take turns placing cans.
- Roll a number cube to determine how many cans to put on the tower.
- Adopt this activity to any number of settings. For example, how many cans of food, such as soup (or other heavy objects) can two children hold when each holds two corners of a towel? Repeat this with very large or small cans. With your guidance, they could also try to make a tower of the cans (ordering them by size, with the largest on the bottom).

Materials Needed
Counters Prod 10_CountTowerBeyond10.pdf
Observe and Record Student Progress

1. Write any notes pertaining to student progress at each trajectory level.
2. The teacher notes are for you only.
3. Parent/guardian notes will be sent to the child’s authorized email address(es).
4. You can keep track of your children’s progress in each trajectory by viewing the Trajectory page.
Computer Activities

Currently, there are four computer activities for children. These activities are designed for children to play independently, without needing adult assistance, after the child’s initial acclimation to the computer activity.

1. **Help the Turtle Get Home** is aligned to four levels in the Counting Trajectory: Counter (Small numbers), Counter (10), Producer (Small Numbers), and Counter on Using Patterns.

2. **Subitize! Planets** is aligned with six levels in the Subitizing Trajectory: Small Collection Namer, Perceptual Subitizer to 4, Perceptual Subitizer to 5, Conceptual Subitizer to 5, Conceptual Subitizer to 10, and Conceptual Subitizer to 20.

3. **Shape Puzzles** is aligned with four levels in the Shape Composer Trajectory: Piece Assembler, Picture Maker, Shape Composer, and Substitution Composer.

4. **Concentration** is aligned with one level in the Subitizing Trajectory (Conceptual Subitizer to 20), two levels in the Counting Trajectory (Counter 10 and Counter and Producer 10+), and two levels in the Shapes Trajectory (Shape Matcher – Identical, Orientations, Sizes and Shape Matcher – More Shapes, Sizes & Orientations, Combinations).
Accessing the Computer Activities

There are two ways to access the games.

1. Through the activities on the level pages.
2. Through the Activity Explorer tab.

OPTION 1: Level Pages

Accessing the computer activities through the activities list on the level pages will not require children to log into their individual account. However, when a child plays the games through the level pages their progress will not be recorded since they are not logged in with their own username and password.

1. Select the computer activity from the activities listed under specific level pages. Not every level at every trajectory will have a computer activities associated with it. The games are listed under “Computer Activity”.

2. Select “Start Game” and begin playing.
OPTION 2: Activity Explorer

Accessing the computer activities through the Activity Explorer will require children to log into their individual account, which will allow a child’s progress to be recorded as they play each game.

1. Click on the “Activity Explorer” tab at the top of the page. This will redirect you to a separate site.

2. Log in using your same username and password.

3. Select the appropriate class. Then, click “Start”.

To best protect your teacher account and student data, you will be logged out before continuing to the Activity Explorer.
4. Let the child select themselves (you may want to print out the student roster with login information and have that ready).

5. Let the child enter their password using their login card. (See note below about turning off passwords).

6. The student can select between the four games available: Help the Turtle Get Home, Subitize! Planets, Shape Puzzles, and Concentration.
   a. Help the child select the appropriate level that corresponds to where the child is on the Counting, Subitizing, Shape, or Shape Composer trajectories.
   b. If you are unsure what level the child is at, start with the lowest level in each game and have the child keep playing progressively higher levels until the game becomes challenging. This is the appropriate level for the child. When using the Activity Explorer, the games should automatically advance the child to the next level if they successfully play the game without making many errors. If the child makes several errors, the game will adjust and have the child play that level again until they have successfully mastered that level.
**Turning off Passwords**

If you would prefer for children to not have to enter their passwords to play the game, but still select their individual accounts, you can turn off the password setting on the main [LT]² website.

1. Return to the main [LT]² website. You may have to log back in.
2. Select the “Roster” tab at the top of the page.
3. Select the appropriate class (if there is more than one class) and click on “Edit Class Details”.

![Test's First Class 4 Year Olds](image)

**Add a new student:**

<table>
<thead>
<tr>
<th>FIRST NAME</th>
<th>LAST NAME</th>
<th>GRADE / AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>4 Year Olds</td>
</tr>
</tbody>
</table>

*Add multiple students at a time*
4. Switch the “Passwords for Students” from ON to OFF.

5. You can also turn passwords off for individual children, instead of the entire class, by selecting the “Edit” button next to each child.
Resources

The Resources page includes link to more information on early math including websites, videos, research, and curricula used to inform [LT]² activities. Access the Resources page from a link at the bottom of any [LT]² page.