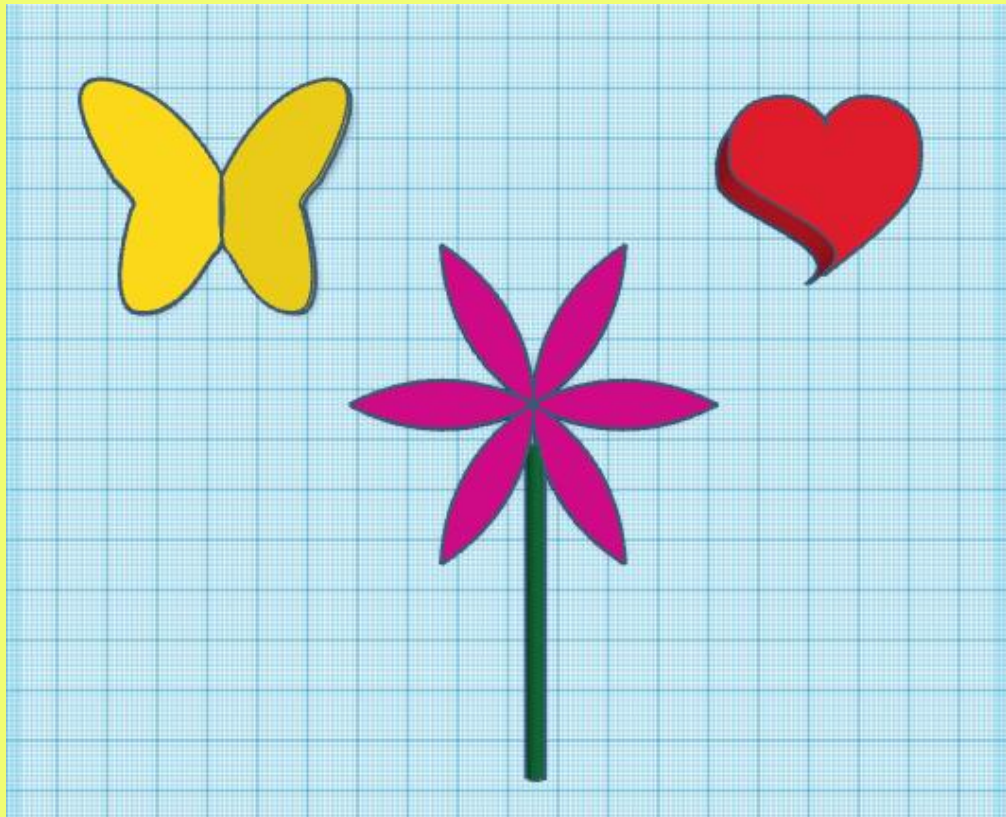


Using 3D Modeling to Teach Language and Communication Skills

A How-To Guide with Easy Instructions



Created by **Positively Autism:**
Making Learning Fun and Meaningful for
Students with Autism

Other resources from Dr. Caldwell

Thanks for reading this guide! I love to share teaching ideas and materials for educators and families.

If you'd like more information about how I teach 3D modeling, coding, and science/technology to kids and teens with autism, please follow my Facebook page Aspire Robotics at

<https://www.facebook.com/AspireRobotics/>

If you'd like to get more teaching activities and freebies each month in your e-mail, please join my free newsletter: <http://www.positivelyautism.com/>

You can also join my Facebook groups for more ideas and resources:

[Autism and Homeschooling Facebook Group](#)

[Naturalistic ABA Idea Group](#)

Thanks and enjoy the guide,

Dr. Nicole Caldwell

Founder, Positively Autism

<http://www.PositivelyAutism.com/>

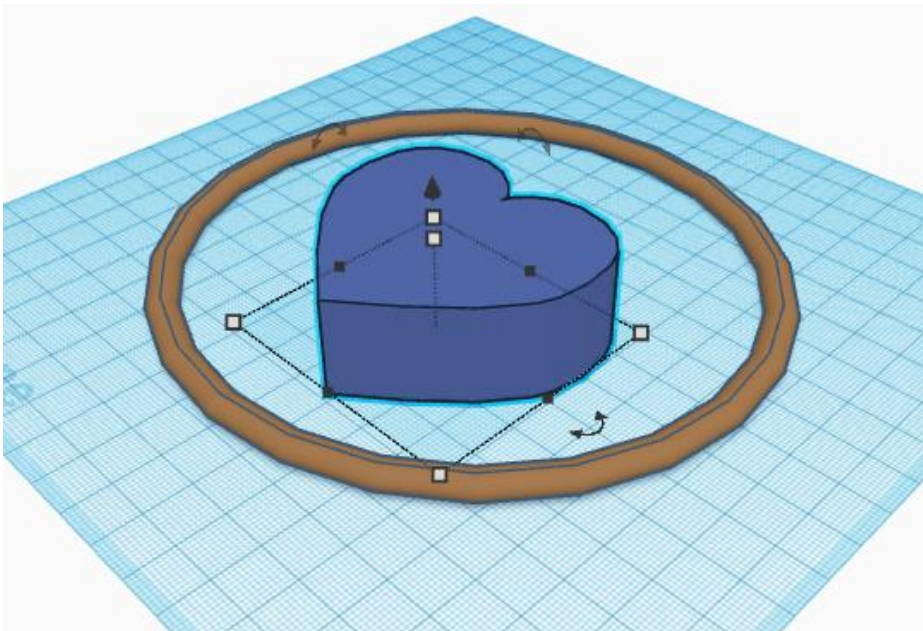
Using 3D Modeling to Teach Language and Communication Skills

By Nicole Caldwell, Ph.D.

What is 3D Modeling?

Very simply defined, 3D modeling means that you're making a visual representation of an object in three dimensions, as opposed to a "flat" (2D) drawing on a piece of paper or on a computer.

There are various computer programs that you can use for 3D modeling, but in this guide, we'll be using the free, web-based program [TinkerCAD](#).



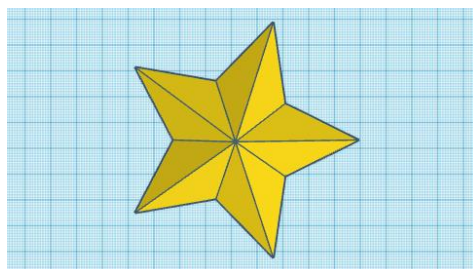
Using 3D Modeling to Teach Language and Communication Skills

Why use 3D modeling for teaching language and communication?

If your child or student enjoys using the computer, and is a good visual-spatial thinker (which many students with autism are), they may really enjoy 3D modeling. One of the best reasons to teach skills using programs like TinkerCAD is that they can be very fun and motivating for the student. A fun activity provides a “real-world” setting to practice language skills. Talking about the design you’re making is a fun way to use language, as opposed to activity without that meaningful context (such as flashcards). I’m not going to say that I never use flashcards, but I make sure to also use fun games and activities to work on language. This shows the child that language can help them during activities they enjoy.

Another reason to use a 3D modeling program to teach your children or students is that it can help them learn relevant skills for the future. 3D modeling can be a vocational skill, so it has relevance for future career options. Even if a child doesn’t end up working in that field, 3D modeling can be an enjoyable recreation and leisure activity.

The key to using this guide depends on whether the student enjoys 3D modeling. The student will be motivated to use language to talk about the program if it’s something he or she enjoys. So, if your student doesn’t enjoy 3D modeling, you might find something else the student enjoys to teach language.



Using 3D Modeling to Teach Language and Communication Skills

Ways to Teach with 3D Modeling: Mands

The type of language that I usually teach with 3D modeling is *manding*. In the Applied Behavior Analysis (ABA) programs I've worked in, manding basically refers to a request for something.

Examples include:

- "I want juice."
- "Let's play ball."
- "Come here."
- "Open the door."
- One word requests for an item/activity, such as "bubbles" or "cookie."

When a child makes one of these mands, we give him or her the item/activity requested. In this way, the child learns that language is a useful skill (it gets them things they want). It also increases vocabulary by learning the names of things to ask for.

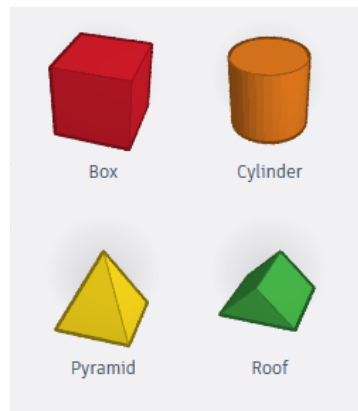
We can also use mands to teach other kinds of words like adjectives. For example, we can have the child request a "red ball" or a "green ball" (or different colors of any favorite toy).

To get the most out of this guide, it would be helpful to have a basic idea of what mands are and how to work with your child or student on using them. Some videos about manding are linked at the end of the document. **These might be a good place to start before reading the rest of the guide.**

Using 3D Modeling to Teach Language and Communication Skills

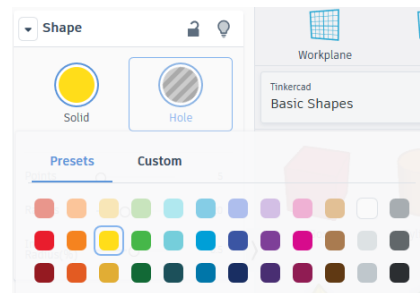
Ways to Teach with 3D Modeling: Mands, continued.

Using TinkerCAD, the child or student can practice saying lots of different words using mands:

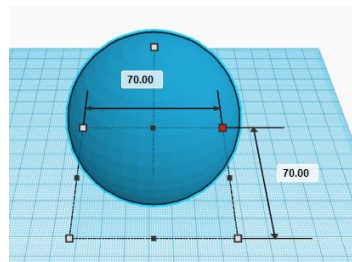
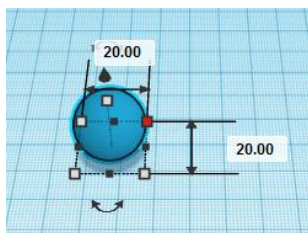


Asking for a particular shape (such as saying “I want cylinder” or simply “cylinder”).

Asking for a shape to be a certain color.



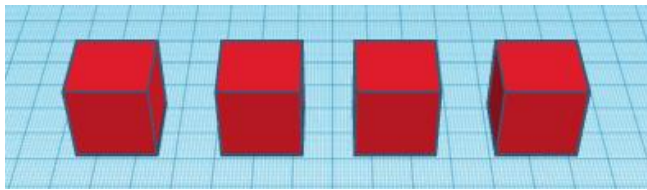
Asking for a shape to be made “big” or “little.”



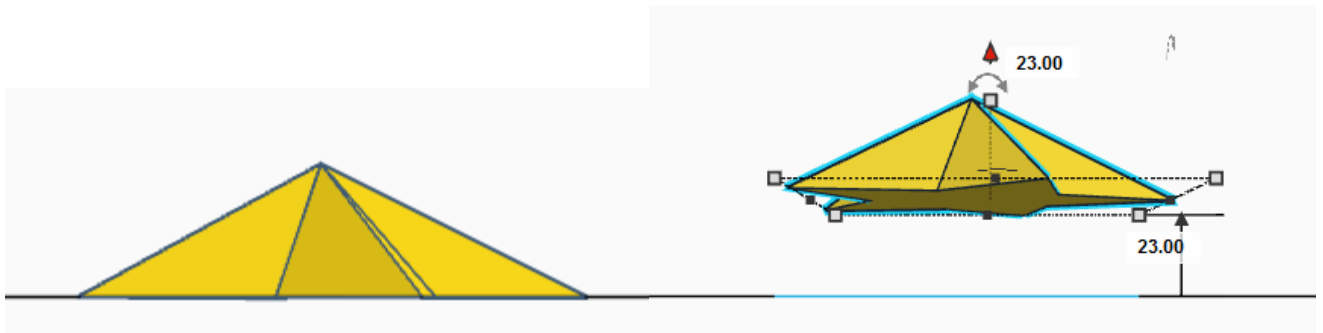
Using 3D Modeling to Teach Language and Communication Skills

Ways to Teach with 3D Modeling: Mands, cont.

Asking for a certain number of a shape (you could use this for counting too – having the child count).



Asking for a shape to be moved “up” or “down.”



These are some of the main ways I use the program, but I’m sure you will think of more once you start using the program with your child or student.

To teach these words:

You’ll prompt the child to request what shape, color, etc. that he or she wants, and then you’ll follow the child’s request by putting that shape on the workplane, changing the color, etc..

If you’re feeling unsure about how to prompt OR how to use the software program, don’t worry. We’ll talk about those next.

Using 3D Modeling to Teach Language and Communication Skills

How to Prompt

There are various types of prompts that are often used when teaching students with autism. In this case, we'll often be using what's called a "verbal prompt," because we are teaching verbal language. (Note: if your child or student uses picture exchange or other AAC methods of communication, you'll use different prompts).

If you're not familiar with using different types of prompts, please read the following blog posts for important information on how to prompt when teaching:

- [Types of Prompts and How to Use Them](#)
- [How to Use Prompts Effectively](#)
- [Procedures for Prompt Fading](#)
- [Using Time Delay to Fade Prompting](#)

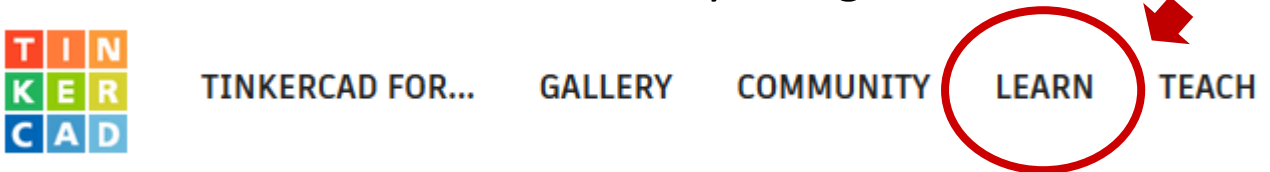
It's important to understand how to use these prompts (and how to fade them so your student is responding independently, without the prompt). If you need additional help with learning to use these prompts, please consult a Board Certified Behavior Analyst (BCBA).

Using 3D Modeling to Teach Language and Communication Skills

How to Use TinkerCAD

If you've never used a 3D modeling program before, don't worry. TinkerCAD has some easy tutorials that will teach you all you need to know to use the program to teach some basic manding to your students.

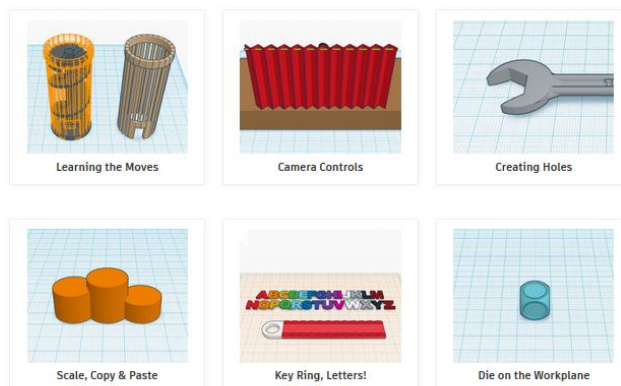
There are also advanced tutorials that you can do if your student loves the program and wants to learn more. Here's where to find the tutorials when you log-in to TinkerCAD:



Scroll down to here, and do these basic lessons to get familiar with TinkerCAD. They're pretty short and easy. Then you're ready to start teaching!

Step-by-Step Lessons

Basics Projects



Links About Manding:

Videos to Help Learn About Teaching Mands

Short Intro Videos:

- [Autism Jargon: Mand](#)
- [Manding \(brief definition and examples\)](#)
- [Behavior Tips: Manding, How To Ask For Things Appropriately](#)

Longer Videos with More Information:

- [Manding 1 by ABA Speech](#)
- [Speech Therapy Autism \(Manding\)](#) – a follow-up to the above video.