Tickle Monster
Teacher Guide

Summary

- Coding skill level: **Beginner**
- Recommended grade level: **Grades 3-8 (U.S.), Years 4-9 (U.K.)**
- Time required: **40 minutes**
- Number of modules: **1 module**
- Coding Language: **Tynker blocks**

Teacher Guide Outline

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- Extended Activities

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Help

Welcome!

In this lesson, students will use Tynker's AI (artificial intelligence) hand tracking model to tickle a monster with their finger! Students will begin by sketching different monster costumes on a piece of paper. Next, students will move on to the DIY module where they'll reinforce coding concepts to program a project called "Tickle Monster." The DIY module includes a sample project, step-by-step tutorial, code blocks to help students get started, and ideas on how to modify their AI project. Time permitting, students will combine code, creativity, and common Latin word stems as they create their own "root monster", as described in the "Extended Activities" section of this guide.

Important: Students will need a working webcam and a free student account in order to complete the project.

How to Prepare

This activity is designed for self-directed learning. Your role will be to help students individually and facilitate as students complete the coding activities on their own. The best way to prepare is to:

1. **Familiarize yourself with the material.** After selecting your Tynker lesson (Tickle Monster), read through the teacher guide and complete the activity before assigning it to students. This will allow you to troubleshoot anything in advance and plan for potential questions from your students.
2. **Sign up for a teacher account.** Creating a free teacher account will allow you to access teacher guides, answer keys, and tons of additional resources. You'll also be able to create free accounts for your students, monitor their progress, and see their projects.
3. **Create student accounts.** From your teacher account, you can easily create free student accounts for all your students. This will allow them to save their projects and progress, so they can continue coding when they get home!
4. **Optional: Gain experience with the Tynker Drawing tool.** If students want to learn more about what they can do with the Drawing Tool, direct them to this link:
   The Drawing Tool — Learn how to create custom artwork
   Link address: https://www.tynker.com/blog/tynkers-vector-drawing-tool/

Activity

Overview

Objectives

Students will...
- Design and animate a monster
- Apply coding concepts such as conditional loops, detect conditions, simple pose detection, simple landmarks, and simple costume handling

- Use code blocks to create an interactive project that uses Tynker's hand tracking AI

Materials
- **For web:** Computers, laptops, or Chromebooks (1 per student)

Vocabulary
- **Artificial Intelligence:** The idea of machines (such as computers) demonstrating intelligence, similar to how our brain works
- **Machine learning:** When computers learn from examples or experience to make decisions or recognize patterns on their own.
- **Code:** The language that tells a computer what to do
- **Actor:** A Tynker character or object that can talk and interact with others
- **Costumes:** Different appearances for an Actor
- **Stage:** The background of the project where the Actors are placed
- **Sequence:** The order in which steps or events happen
- **Command:** A specific action or instruction that tells the computer to do something
- **Loop:** An action that repeats one or more commands over and over
- **Conditional loop:** A loop that performs one or more commands as long as the specified condition is met

U.S. Standards
- **CCSS-ELA:** RF.3.4.A, RF.4.4.A, RF.5.4.A, 6-8.RST.3, 6-8.RST.4, 6-8.RST.7
- **CCSS-Math:** MP.1
- **CSTA:** 1B-AP-11, 1B-AP-12, 1B-AP-15, 2-AP-13, 2-AP-17
- **CS CA:** 3-5.AP.13, 3-5.AP.17, 6-8.AP.13, 6-8.AP.15
- **ISTE**: 1.1.c, 1.1.d, 1.4.d, 1.5.c, 1.5.d, 1.6.b

U.K. Standards
National Curriculum in England (computing):
- **Key Stage 2 (Years 4-6)**
  - Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs
  - Use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact
- **Key Stage 3 (Years 7-9)**
  - Create, reuse, revise and repurpose digital artefacts for a given audience, with attention to trustworthiness, design and usability
  - Understand a range of ways to use technology safely, respectfully, responsibly and securely, including protecting their online identity and

privacy; recognise inappropriate content, contact and conduct, and know how to report concerns

Getting Started (10 minutes)

- Show students the completed sample project by clicking this image in the tutorial:

- Next, inform students that they'll need to design their own monster later today. Prepare students by asking them to sketch three different costumes on a piece of paper: 1 idle ("normal") costume and 2 other costumes where it looks like the monster is reacting to being tickled. Here's an example:

Idle	Eyes Closed	Laugh

DIY Module (30 minutes)

This lesson has one DIY (do-it-yourself) module. Facilitate as students complete the Tickle Monster module on their own:

Tickle Monster (DIY)

- In this DIY, students will use Tynker's AI hand detection blocks to create a project where it looks like they're tickling a monster. Additionally, students will create their own monster using Tynker's Drawing Tool.
- Note that this project utilizes an AI model. This model has already been "trained" to recognize the human body by being shown many photos of people and data about what's in the photos. Now the model is ready to be used in the project, where it can "find" your students' hands using their webcam.
- Additional coding activities include drawing a monster, adding different costumes to the monster, enabling hand tracking, and programming the monster to look like it's being tickled.
- Make sure students follow the step-by-step instructions and drag blocks from the tutorial tab to the center coding area.
- Page 3 of the tutorial instructs students to draw their own monster. If students want to learn more about what they can do with the Drawing Tool, direct them to this link:
  - The Drawing Tool — Learn how to create custom artwork

Link address: https://www.tynker.com/blog/tynkers-vector-drawing-tool/

- Are students struggling to create their own monster? Encourage students to use the provided template monster to help them get started. Here's what it looks like:

  Next, ask them to try coloring the monster and add costumes. Let's see what other unique features your students will add to their monster!
- Check for understanding by asking students why we need to draw more than one costume for the monster. (Answer example: To create a laughing animation, we need the monster to have at least two costumes.)
- Make sure students give meaningful names to their costumes. This will make it easier for them to keep track of all the wonderful costumes they draw! For example, a costume name of "tickled" is a better name than a costume named "111".
- Make sure students include a background. They can either draw their own background or select one from Tynker's Media Library.
- Did students finish early? Direct their attention to the last page of the tutorial which includes ideas on how to further expand on their project.

Extended Activities

Root Monster

- In this activity, students will create a monster using Latin word stems. Here's a list to help you get started:

Uni (one)	Cornu (horn)	Lingua (tongue)
Bi (two)	Capit (head)	Dent (tooth)
Tri (three)	Oculus (eye)	Magnus (large)
Quad (four)	Nasus (nose)	Micro (small)
Quin (five)	Auris (ear)	Ped (foot)

- Next, ask students to use at least 4 Latin stems to create a Latin name that describes their monster.
  - Example: Magnustrioculus Quaddent (large three-eyed, four-tooth)

- Make sure students write the Latin name and English translation of their monster at the top of their paper. Then, ask them to draw and color a picture of what their creature might look like based on its name. Time permitting, ask students to create and animate their root monster using Tynker!

Going Beyond Tickle Monster

If your students enjoyed Tickle Monster, they're sure to enjoy the rest of what Tynker has to offer! Tynker offers a complete premium solution for schools to teach AI and computer science. Over 400 hours of lessons are available to take K-8 students from block coding to advanced text coding. We offer tons of resources for teachers, including comprehensive guides, free webinars, and a forum to connect with other educators.

Do More with Tynker

With Tynker, kids don't just acquire programming skills—they explore the world of possibilities that coding opens up. Tynker has several interest-driven learning paths that make coding fun, both inside and outside the classroom:

- **Even More Free AI Tutorials** — https://www.tynker.com/blog/tynker-toolbox-the-ai-blocks/
- **Artificial Intelligence 101** — This AI course uses Tynker's fun and friendly code blocks. Webcam projects powered by AI put your students at the center of the action! Create interactive Snapchat-style costumes, hand-tracking apps, activity games, and so much more. Along the way, students understand how AI models are driving their amazing inventions behind the scenes. Students even explore natural language processing (NLP), the technology used by modern chatbots like ChatGPT. Find out more here: https://www.tynker.com/k8-school/coding-curriculum/artificial-intelligence-101
- **Artificial Intelligence 401** — This JavaScript course is perfect for experienced students looking to implement AI in their programs. Learn how to use MediaPipe, an AI solution from Google, and explore topics like neural networks, supervised learning, and much more. More than that, students dive into AI ethics and consider how AI might impact our future. Find out more here: https://www.tynker.com/k8-school/coding-curriculum/artificial-intelligence-javascript-401
- **Coding and Game Design** — Your students can use Tynker Workshop, a powerful tool for crafting original programs to make games, stories, animations, and other projects. They can even share their work with other kids in the Tynker Community.
- **Robotics** — Tynker integrates with connected toys, including Lego WeDo robotics kits, so kids can see their code come to life.
- **Minecraft** — Tynker integrates with Minecraft so your students can learn coding through a game they love. Tynker offers skin and texture editing, as well as a custom Mod Workshop that lets kids try their original code in Minecraft.

Tynker for Schools

Used in over 90,000 schools, our award-winning platform has flexible plans to meet your classroom, school, or district needs. All solutions include:

- Grade-specific courses that teach visual coding, JavaScript, Java, Python, and robotics

- A library of NGSS and Common Core compliant STEM courses that are great for project-based learning
- Automatic assessment and mastery charts for whole schools and individual classes and students
- Easy classroom management with Google Classroom and Clever integration
- Professional training, free webinars and other teacher training resources

Need help getting Tynker started at your school? Contact us to learn more about teaching programming at your school with Tynker!

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Help

Need help? Below you'll find answers to frequently asked questions about using Tickle Monster.

How do I prepare for Tickle Monster?

Familiarize yourself with the material. After selecting your Tynker lesson (Tickle Monster), read through the teacher guide and complete the activity before assigning it to students. This will allow you to troubleshoot anything in advance and plan for potential questions from your students.

How does this project use AI?

This project utilizes a pre-trained AI body tracking model. The AI model has been trained on a large dataset of images featuring the human body. When your students interact with the project, the model analyzes the incoming video feed to identify and follow the movements of the user's body landmarks, specifically of the hands, providing accurate and instantaneous tracking. Using Tynker's AI blocks, students can apply the AI technology to build interactive, sophisticated projects. Let's see what your students will create!

Who is this activity for?

Tickle Monster is intended for students in grades 3-5 (U.S.) or years 4-6 (U.K.) with some coding experience.

How do my students code their project?

The Tickle Monster DIY module includes a workspace for students to code their project. The section on the left is a tutorial tab that gives step-by-step directions and describes what is happening in each step. Students can code their project by dragging code blocks to the middle coding panel.

What will my students learn?

Students will learn about machine learning and AI while they combine creativity and coding concepts to create an interactive project called "Tickle Monster." This project uses Tynker's AI model. Additionally, students can also expand on their project while experimenting with new code blocks. In this process, students will develop debugging and logical reasoning skills.

What do the code blocks do?

Below is sample code for the Actors.

Stage:

on start	← Run the code attached to this block when the Play button is clicked.
✋ start hands detection	← Start the AI model that is trained to detect hand landmarks.
show detection	← Show a visualization for any AI sensing that is active.

Tickle Monster:

on start	← Run the code attached to this block when the Play button is clicked.
switch to costume idle	← Change the monster's costume to the "idle" pose.
forever if touching ✋ Right Pointer Fingertip ?	← Run the code inside this loop if the user's right pointer finger is touching the monster.
switch to costume tickled	← Change the monster's costume to the "tickled" pose.
play sound cartoon giggle until done	← Play a cartoon giggle sound.
switch to costume idle	← Change the monster's costume to the "idle" pose.

Note: This is an open-ended DIY project. Above is an example that uses the provided code blocks to create a Tickle Monster project.

How can I contact the Tynker support team?

If you have any issues or questions, send us an email at support@tynker.com.