

Teacher Resources: OSMO

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STEMbound Contact Information

If anything seems missing or damaged, please contact us as soon as possible. Thank you!

Contact Name	Contact Information
STEMbound Team	STEMbound@sourcewell-mn.gov

Website Quick Links		
STEMbound Home Page	Equipment Check-out Library Equipment Request	Consultant-led Learning Consultant-led Request
STEM Network	Partnership in Planning Request	Professional Learning

You can access the above links and more at <https://mn.sourcewell.org/education/STEMbound>.

Equipment Snapshot

Purpose

OSMO is an interactive educational system that combines physical manipulatives with digital gameplay to create an engaging learning environment for children. Using a base and a reflective mirror attached to a tablet, OSMO enables students to interact with on-screen content by manipulating real-world objects such as letter tiles, number tiles, coding blocks, and drawing tools. The equipment fosters creativity, problem-solving, and critical thinking by blending tactile and digital learning experiences. It offers a variety of games and activities that support subjects like math, spelling, coding, and drawing.

- Age appropriateness: Typically designed for ages 5-12, although certain games and applications can be suitable for younger children with assistance, or older learners in differentiated settings.
- Common uses: Early literacy and numeracy practice, logic puzzles, spatial reasoning games, creative drawing activities and introductory coding.
- Classroom applications: OSMO is often used in centers, small groups, or individual stations for enrichment, remediation, or STEM activities. It supports differentiated instruction and can be integrated into subjects such as math, reading, art, and computer science.

Operation

- Setup: Place the tablet in the OSMO base and attach the red reflector over the device's camera.
- Software: Launch the app that corresponds to the physical kit or game as shown below.
- Play: Children place physical pieces in the play area, and the app recognizes and responds to their movements in real-time.

Maintenance

- Cleaning: Wipe down the base, reflector, and physical tiles/blocks with a soft, dry, or slightly damp cloth. Avoid using harsh chemicals.
- Storage: Keep the components organized in their designated containers to prevent loss of pieces. Ensure the reflector is stored securely to avoid scratches.
- Software updates: Periodically update OSMO apps to access new features and ensure compatibility with device operating systems.

Safety Considerations

- OSMO is designed for children 5+, but younger users should be supervised to avoid mishandling small parts.
- Follow screen time guidelines appropriate for age groups to ensure healthy usage.
- Account creation for progress tracking should comply with privacy rules; children under 13 should not create their own accounts without educator management.
- Handle the mirror reflector with care; it's crucial for functionality and can be damaged by drops or scratches.
- Keep pieces away from mouths to prevent choking hazards in younger classrooms.

Possible Projects

- Literacy station rotation: Students use OSMO Words to build vocabulary and spelling skills during independent center time.
- Math exploration: Incorporate OSMO Numbers to strengthen number sense, addition, and subtraction.
- Intro to coding: Create a basic game or animation using OSMO Coding Awbie or OSMO Coding Jam.

STEM challenge: Pair OSMO Tangram with a storytelling activity where students create a narrative based on the shapes they assemble.

Contents Checklist

Please ensure all items and totes are present before and after use.

Item	Picture	Quantity
OSMO Bases		15
OSMO Reflectors		15
OSMO Coding	 Pieces may vary	15 sets
OSMO Numbers		15 sets
OSMO Words		15 sets
OSMO Tangram		15 sets
OSMO Monster writing boards, erasers, and markers		15 sets

Amazon Fire tablets		15
Charging accessories		15 charging cords, 2 charging hubs, 3 additional chargers

Usage instructions

Setup Instructions (5-10 minutes)

Step-by-step guide to setting up the equipment; includes photos/diagrams. Estimated time to set-up, etc.

1. Remove the OSMO base, reflector, and physical game pieces (tiles, blocks, etc.)
2. Insert your Amazon Fire tablet vertically in the base so it stands upright and stable.
3. Snap the red OSMO reflector onto the tablet's front-facing camera. Make sure it aligns so the camera can "see" the play area.
4. Power on the tablet and open the required OSMO app. See table below for corresponding apps and kits.

App visual and name	Physical kit
 Numbers	
 Words	
 Tangram	
 Monster	
 Coding Awbie, Jam, Duo	 Pieces may vary
 Pizza Co.	

5. Place the pieces in front of the tablet, clear of obstructions, on a flat, light-colored surface for best camera visibility.

Operating instructions

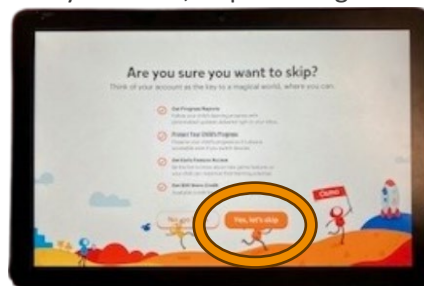
- Turn on the tablet by pressing and holding the small button on the side of the tablet.



- Open the desired OSMO app from the main screen.



- Follow the on-screen prompts to begin the activity. If asked, skip creating an account.



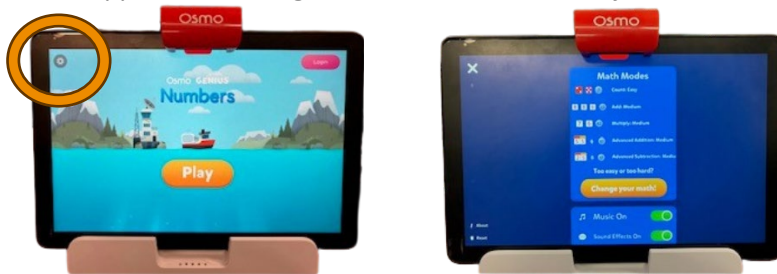
- Place the tablet in the base and place the reflector as shown on screen.



- If the reflector is not recognized, adjust by turning the dial or by slightly lifting the reflector as shown in the images below.



- Each app has a “Settings” icon in the corner to adjust the level of play.



- There is also a “Reset” trash icon to erase all progress made from other students.



- Once setup is complete, place and move physical pieces in the play area as directed by the app.



Best Practices

- Use in a well-lit room to help the camera detect pieces clearly.
- Keep the play surface clean and uncluttered.
- Encourage students to handle pieces gently and return them to storage after use.
- Regularly check that the reflector is clean for accurate tracking.

Cleaning and Maintenance

Cleaning

- Wipe down reflector and base with a dry or lightly damp cloth after class use.
- Clean the tablet's camera and screen as needed.

Maintenance

- Check the reflector for scratches or smudges and clean gently.
- Inspect the base for cracks or damage.
- Ensure game pieces are complete.

Troubleshooting Guide

Problem	Solution
App does not recognize physical pieces	Ensure the reflector is clean and properly positioned; shift the reflector slightly around the camera. Check that the play area is well-lit.
Pieces not appearing correctly on screen	Make sure the pieces are within the camera's field of view and on a light, flat surface.
App won't launch or crashes	Restart the device. See if there is an update needed for the app or tablet's OS.
Camera appears blurry	Gently clean the tablet camera lens and reflector with a microfiber cloth.

Extension Options

Cross-curricular uses

Grades K-2	
ELA	<ul style="list-style-type: none"> Use OSMO Words to build sight words and simple sentences. <ul style="list-style-type: none"> Benchmark: Demonstrate understanding of the basic features of print Engage in storytelling with OSMO Monster, where students draw and narrate stories. <ul style="list-style-type: none"> Benchmark: Participate in collaborative conversations with diverse partners about topics and texts.
Math	<ul style="list-style-type: none"> Practice counting and basic addition with OSMO Numbers. <ul style="list-style-type: none"> Benchmark: Count to 100 by ones and tens Explore shapes and spatial reasoning using OSMO Tangram. <ul style="list-style-type: none"> Benchmark: Distinguish between defining attributes of shapes
Science	<ul style="list-style-type: none"> Use OSMO Coding Awbie to understand basic programming and sequencing. <ul style="list-style-type: none"> Benchmark: Plan and carry out investigations to answer questions
Social	<ul style="list-style-type: none"> Operate OSMO Pizza Co. to learn about goods, services, and basic economics. <ul style="list-style-type: none"> Benchmark: Identify goods and services and distinguish between needs and wants
Other	<ul style="list-style-type: none"> Arts: Create drawings with OSMO Monster, enhancing fine motor skills <ul style="list-style-type: none"> Benchmark: Explore the elements of visual art Music: Compose simple tunes with OSMO Coding Jam, understanding the rhythm and patterns. <ul style="list-style-type: none"> Benchmark: Explore the elements of music through singing and playing instruments
Grades 3-5	
ELA	<ul style="list-style-type: none"> Use OSMO Words to expand vocabulary and comprehension through interactive games. <ul style="list-style-type: none"> Benchmark: Determine the meaning of words and phrases as they are used in a text Create and present stories using OSMO Monster, integrating multimedia elements. <ul style="list-style-type: none"> Benchmark: Engage effectively in a range of collaborative discussions with diverse partners
Math	<ul style="list-style-type: none"> Solve multiplication and division problems with OSMO Numbers. <ul style="list-style-type: none"> Benchmark: Multiply and divide within 100 Enhance geometric understanding through complex puzzles in OSMO Tangram. <ul style="list-style-type: none"> Benchmark: Classify two-dimensional figures based on properties
Science	<ul style="list-style-type: none"> Develop problem-solving skills with OSMO Coding Jam, creating music through coding. <ul style="list-style-type: none"> Benchmark: Generate and compare multiple possible solutions to a problem

Social

- Manage a virtual business with OSMO Pizza Co., focusing on supply and demand.
 - Benchmark: Explain how supply and demand affect prices

Other

- Music: Compose simple tunes with OSMO Coding Jam, understanding the rhythm and patterns.
 - Benchmark: Explore the elements of music through singing and playing instruments

Additional Resources

- Beginner information: <https://tinyurl.com/osmoinformation>
- Lesson Ideas: <https://tinyurl.com/osmoideas>

Video tutorials

- [OSMO Words](#)
- [OSMO Words-Adventure mode](#)
- [OSMO Words- uppercase and lowercase](#)
- [How to Play OSMO Words](#)
- [How to Play OSMO Tangrams](#)
- [How to Play OSMO Numbers](#)
- [OSMO Monster](#)
- [OSMO Pizza Co](#)