

JUNIOR SAINTS

ACTIVITY PLAN

AGES 7–11

3D PRINTING

INTELLECTUAL CORE

Version 2026.1



Layer by Layer

Build something by stacking layers, the way a 3D printer does.

🕒 60 minutes · one session

🎯 WALK AWAY WITH

- Has watched a real 3D printer lay down at least one layer.
- Has stacked a paper tower at least six rings high.
- Has coiled a small clay mug from a clay snake.
- Has drawn a plan for one small thing to print.

📦 BRING / SET UP

- A 3D printer running a short print (the leader sets this up before the session)
- A finished printed object and one with visible layer lines, for show-and-tell
- A stack of paper strips (1 inch wide, 11 inches long), tape, and scissors
- A small lump of air-dry or play clay for each Junior Saint
- A blank sheet of paper and a pencil for each Junior Saint

FOR THE LEADER

This is a Junior Saints preview of the **3D Printing** badge. No advancement credit is earned here — the goal is to introduce these concepts to Junior Saints alongside the older Saints Global youth working the full BRC. The 4-session Saints Global arc lives under *Activity Plan (SG)* in the BRC builder.

LAYER BY LAYER (PAGE 1 OF 2)

THE HOUR

BLOCK 1 · DISCUSSION Opener — Welcome circle

⌚ 5 min

Stand in a circle. Each Junior Saint says his name. Then he names one thing he has built or made with his hands. Examples: a sandcastle, a Lego car, a fort, a paper airplane. The leader goes last. Keep each turn short.

BLOCK 2 · DISCUSSION Watch the printer work

⌚ 10 min

1. Gather around the running printer. Stay back six steps. Do not touch the printer.
2. Safety: the hot part of the printer burns. The leader points at the hot end and the moving parts.
3. Watch one layer go down. Watch the next layer go down on top of it.
4. Teaching point: a 3D printer stacks thin lines. One layer on top of the next.
5. Pass the finished printed object around. Run a finger across the side. You can feel the layers.

BLOCK 3 · SKILL PRACTICE Stack a paper tower

⌚ 15 min

1. Sit at a table. Each youth gets ten paper strips, a piece of tape, and scissors.
2. Loop the first strip into a small ring. Tape it shut. That is your first layer.
3. Loop the next strip and tape it on top of the first. Keep stacking.
4. Stack at least six rings high. Try to keep the tower straight.
5. Teaching point: every ring rests on the ring below it. A crooked ring makes the next ring lean more.

BLOCK 4 · SKILL PRACTICE Coil a clay mug

⌚ 15 min

1. Each youth gets a lump of clay. Roll it into a long snake on the table.
2. Press the snake into a circle for the base. Press the seams shut.
3. Roll another snake. Coil it on top of the base, all the way around.
4. Keep coiling until you have walls. Smooth the inside with one finger.
5. Show your mug to the saint next to you. No racing — slow hands work best.

BLOCK 5 · CREATIVE Draw what you would print

⌚ 10 min

1. Sit with paper and a pencil. Think of one small thing you would want to print.
2. Draw it from the side. Show how tall it is and how wide it is.
3. Mark where the bottom rests on the printer. The bottom is the first layer.
4. Write one word that says what it is for. A tool, a toy, a part for something broken.
5. Show your drawing to the leader. The leader names one good thing about it.

LAYER BY LAYER (PAGE 2 OF 2)

THE HOUR — CONTINUED

BLOCK 6 · REFLECTION **Close — Layers and cheer**

⌚ 5 min

1. Stand in a circle. Stretch your hands, arms, and back. Hold each for ten seconds.
2. Drink water.
3. Each Junior Saint says: 'I stacked ___ rings on my tower.' Just one number.
4. Group cheer: 'Layer by layer!' Three times.
5. Homework: show your drawing to a parent. Tell them what the first layer would be.

AT THE CLOSE · DEBRIEF

1. How many rings tall was your paper tower?
2. Which finger did you use to smooth the inside of the clay mug?
3. What is the one thing you drew that you would want to print?

☒ This is a Junior Saints preview session. No 3D Printing BRC requirements are earned here — the goal is to introduce the concepts the older Saints will work on.

Layer by Layer

Print and post so Junior Saints see how layers stack into a shape.

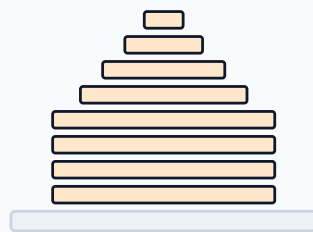
3D PRINTING · JUNIOR SAINTS CARD

Build it up, one layer at a time.

A 3D printer stacks thin layers, one on top of the next.

A shape made of stacked layers

A printer builds from the bottom up. Each slice sits on the one below.



Layers build up

Each new layer sits on the one below.

A crooked layer makes the next one lean.

The paper tower works the same way.

How a printer stacks layers

Three plain steps, from one thin line to a whole shape.

- 1 A printer lays one thin line at a time.
- 2 Each layer rests on the layer below it.
- 3 Many flat layers stack into a solid shape.

Stack paper rings into a tower and watch it grow.