BIG FLOOR PLANS · GRANT PACKET · GRADES 9-12

Renovate the Teaching House: a high-school design project with real constraints

Copy-ready answers for STEM and CTE grant applications. 6 free lessons on one reusable 1:1 print. Checked October 10, 2026.

How to use this packet

- Pick the funder below that fits your grade and timeline, and confirm its current deadline on the official page.
- Copy each section into the application. Replace everything in [brackets] (highlighted in the Word version).
- Get a written quote for the print at bigfloorplans.com/get-a-quote and put the exact figure in your budget.
- Optional: attach the free Evidence PDF from bigfloorplans.com/education-funding (research base and standards).

Funders that fit this project

FUNDER	AMOUNT	TIMING	WHAT THEY ASK FOR
Toshiba America Foundation, grades 6-12 https://www.toshiba.com/taf/612.jsp	Up to $5,000 (or over $5,000)	Up to $5,000: due Mar 1, Jun 1, Sep 1 and Dec 1. Over $5,000: due May 1 and Nov 1.	In-class, project-based learning with measurable outcomes. Not funded: clubs, after-school or summer programs, general operations, computer hardware. One grant per school at a time.
ESSA Title IV-A (Student Support and Academic Enrichment) https://www.ed.gov/	Formula funds held by your district	Ask your district federal-programs / Title IV coordinator; uses are set locally.	A short request tying the purchase to well-rounded STEM education: use the summary, objectives and budget below.
DonorsChoose / PTA / PTO https://www.donorschoose.org/	Your project total	Ongoing.	A plain-language project story, the student impact and an exact cost. Use the summary and budget below.

Funder details checked on the official pages on October 10, 2026. Amounts, eligibility and deadlines change every cycle: confirm them before you apply.

1. Project title

Renovate the Teaching House: a high-school design project with real constraints

2. Project description

[Number] students in grades 9-12 at [School name] will learn geometry and modeling, energy transfer, light, accessibility standards and cost estimating by walking, measuring and testing ideas on a full-size (1:1) printed floor plan of a real building, the Teaching House. Over [6 weeks], students complete 6 standards-aligned lessons, 4 of them on the print and the rest in taped spaces. Each team delivers a

renovation proposal for the Teaching House: an energy and lighting check, an accessible route and clearance audit, and a priced scope. The print is a durable, reusable classroom material: after this project it stays in use for future classes and other subjects, with 75 free lesson plans written for it.

---

3. Students served

[Number] students in [number] class sections, Grades 9-12, at [School name], [City, State]. [Percent]% of students qualify for free or reduced-price meals. [Optional: number of students with IEPs or English learners; the lessons include SPED and ELL supports.] Because the print is reused, about [number] students per year will use it after this project.

---

4. Goals and measurable objectives

Goals

- Students apply geometry, physics and cost estimating to a real building at true size.
- Students test a design against accessibility, energy and circulation constraints before proposing it.
- Students communicate a costed, evidence-based renovation proposal to an outside audience.

Measurable objectives (set your own targets)

- By [date], at least [80]% of students will measure exterior perimeter and enclosed area of a printed layout (The Energy Envelope), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will read rise from the plan data and run from the ladder footprint. (Stairs and Ladders on the Plan), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will measure the legs of a rectangular room (Walk the Hypotenuse), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will place true-size furniture in a room layout (Reach and Clearance), measured by the lesson's exit ticket.

---

5. Methods and lesson sequence

Students work in small teams on the full-size print. Each lesson follows the same routine: a short teacher model, guided practice on the floor, team work, a check for understanding and an exit ticket with an answer key. Every lesson also has a paper version at desks and supports for SPED and English learners.

WEEK	LESSON	TIME	WHAT STUDENTS DO	STANDARDS
[Week 1]	The Energy Envelope https://www.bigfloorplans.com/lessons/energy-envelope	40-45 min	Students measure perimeter and area of footprints with equal area and reason about which shape has more exterior wall per square foot.	CCSS HSG-MG, NGSS HS-PS3
[Week 2]	Stairs and Ladders on the Plan https://www.bigfloorplans.com/lessons/stairs-and-ladders	40-45 min	Students compute the Tiny House loft ladder's angle and length with trig, then design a stair for the same rise and test whether it fits.	CCSS HSG-SRT
[Week 3]	Walk the Hypotenuse https://www.bigfloorplans.com/lessons/walk-the-hypotenuse	25-35 min	Students predict a room's diagonal with the Pythagorean theorem, measure it, and explain the gap as measurement error.	CCSS HSG-SRT

[Week 4]	Reach and Clearance https://www.bigfloorplans.com/lessons/reach-and-clearance	35-45 min	Students place true-size paper furniture, test clearances with everyday tasks, and build a measured clearance table.	NGSS HS-ETS1, Perkins V, ADA 2010
[Week 5]	Roll the Route: ADA Clearance Study https://www.bigfloorplans.com/lessons/roll-the-route-ada-audit	45-50 min	Students measure routes, door openings and turning spaces against selected 2010 ADA Standards dimensions and list possible concerns.	NCCER, Perkins V, ADA 2010
[Week 6]	Price per Square Foot, On Foot https://www.bigfloorplans.com/lessons/price-per-square-foot	40-45 min	Students measure and total a plan's area, apply local price-per-square-foot comparables, and defend a price range.	CCSS HSG-MG, Perkins V

---

6. Timetable

- [Month 1]: order the print on award (about 48-hour proof, then printing and shipping); copy student sheets.
- [Months 1-3]: teach the 6 lessons above, one per week or two per week.
- [Final month]: post-assessment, student presentations, report results to the funder.

---

7. Evaluation plan

Pre/post check. Give these items at the start of the unit and again at the end (answers are in the lesson keys):

- A 6 x 24 ft footprint: compute perimeter, area and perimeter-to-area ratio. (The Energy Envelope)
- Rise 105 in, run 140 in: angle and sloped length? (Stairs and Ladders on the Plan)
- A room is 10 ft by 24 ft. Predict its diagonal. (Walk the Hypotenuse)
- Exit tickets from every lesson, scored with the lesson's answer key; report the percent of students meeting each objective.
- Team products (designs, data, takeoffs) checked against the lesson rubric.
- [Optional: a short student reflection: "What did you learn by walking the plan that you would not learn on paper?"]

---

8. Standards alignment

- CCSS HSG-MG - https://www.thecorestandards.org/Math/Content/HSG/MG/
- NGSS HS-PS3 - https://www.nextgenscience.org/dci-arrangement/hs-ps3-energy
- CCSS HSG-SRT - https://www.thecorestandards.org/Math/Content/HSG/SRT/
- NGSS HS-ETS1 - https://www.nextgenscience.org/dci-arrangement/hs-ets1-engineering-design
- Perkins V - https://cte.ed.gov/legislation/perkins-v
- ADA 2010 - https://www.ada.gov/law-and-regs/design-standards/2010-stds/
- NCCER - https://www.nccer.org/

---

9. Research basis

- National Research Council (2006). Learning to Think Spatially: GIS as a Support System in the K-12 Curriculum. National Academies Press. https://doi.org/10.17226/11019
- Uttal, D. H., Meadow, N. G., Tipton, E., Hand, L. L., Alden, A. R., Warren, C., & Newcombe, N. S. (2013). The malleability of spatial skills: A meta-analysis of training studies. Psychological Bulletin, 139(2), 352-402. https://doi.org/10.1037/a0028446
- Barsalou, L. W. (2008). Grounded cognition. Annual Review of Psychology, 59, 617-645. https://doi.org/10.1146/annurev.psych.59.103006.093639
- U.S. Department of Justice (2010). 2010 ADA Standards for Accessible Design. https://www.ada.gov/law-and-regs/design-standards/2010-stds/
- Wai, J., Lubinski, D., & Benbow, C. P. (2009). Spatial ability for STEM domains: Aligning over 50 years of cumulative psychological knowledge solidifies its importance. Journal of Educational Psychology, 101(4), 817-835. https://doi.org/10.1037/a0016127

---

10. Budget

ITEM	DETAIL	COST
1:1 printed floor plan: Teaching House	56' x 42' (2,192 SF of rooms, 17 rooms); printed on 4 panels at $0.45 per printed sq ft	about $1,060-$1,110 [replace with your written quote]
Shipping	Quoted with the print	[from quote]
Painter's tape, tape measures, grid paper	Classroom consumables for the lessons	[amount, or "school supply"]
Lesson plans and student sheets	75 lesson plans, teacher guides, student sheets and answer keys	$0 (free, CC BY 4.0)
Total request		[about $1,060-$1,110 + shipping + consumables]

Prices are estimates from the published rate ($0.45 per printed sq ft, $100 minimum); the exact figure depends on the final print size, so get a written quote (bigfloorplans.com/get-a-quote) before you submit. Purchase orders are accepted.

---

11. Sustainability

The print is a durable, lightweight spunbonded synthetic that is tear- and water-resistant, so it can be rolled out and stored for repeated use. After this project, the same Teaching House print supports other lessons across grades and subjects (the Teaching House alone is used by nearly 30 of the free lessons), so the purchase keeps serving new classes each year at no added cost.

---

12. Principal letter (template)

[Date]

To the [Funder] review committee,

I am writing to recommend [Teacher name], [subject/grade] teacher at [School name], for funding of "Renovate the Teaching House: a high-school design project with real constraints." [Teacher name] plans to use a full-size printed floor plan so that [number] students can practise measurement, data and design by walking and testing their work at real scale. The project fits our school's goals for [goal,

e.g. hands-on STEM / math achievement / career readiness], and the print will remain in use for future classes.

[One sentence about the teacher.]

Sincerely,
[Principal name]
[School name], [phone/email]

Before you submit

- Deadline and eligibility confirmed on the official page.
- Every [bracket] replaced.
- Written quote attached or its figure entered in the budget.
- Principal letter signed (if required).
- Lessons linked above checked against your grade and schedule.