BIG FLOOR PLANS · GRANT PACKET · GRADES 6-8

Measure the House: a middle-school STEM semester on one life-size floor plan

Copy-ready answers for STEM and CTE grant applications. 7 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
AFCEA Paige Grants (middle-school STEM) https://www.afcea.org/gravely-and-paige-grants	Up to $2,000	Rolling; the official page said "Applications Now Being Accepted" on October 10, 2026.	Title and description, number of students, goals and objectives, methods and procedures, timetable, evaluation method, budget, and a letter of recommendation from your principal.
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

Measure the House: a middle-school STEM semester on one life-size floor plan

2. Project description

[Number] students in grades 6-8 at [School name] will learn statistics, probability, ratio and scale, speed, light and weather data by walking, measuring and testing ideas on a full-size (1:1) printed floor plan of a real building, the Teaching House. Over [7 weeks], students complete 7 standards-aligned lessons, 5 of them on the print and the rest in taped spaces. Each student keeps a data notebook of measured results, and each team presents a scaled model and a costed remodel. 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.

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3. Students served

[Number] students in [number] class sections, Grades 6-8, 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.

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4. Goals and measurable objectives

Goals

- Students collect and analyse real data (distance, time, probability, sunlight) on a full-size floor plan.
- Students use ratio, scale and percent to move between drawings, models and the real space.
- Students defend design decisions with measurements and a budget.

Measurable objectives (set your own targets)

- By [date], at least [80]% of students will collect a real data set by measuring the area of every printed room (Data Walk), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will choose a scale and express it as a ratio (Scale-Model Studio), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will compute flooring cost from measured area and unit price (The Remodel Budget), measured by the lesson's exit ticket.
- By [date], at least [80]% of students will orient the floor plan to true north and justify the orientation (Solar Study), measured by the lesson's exit ticket.

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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]	Data Walk https://www.bigfloorplans.com/lessons/data-walk	35-45 min	Students measure every room, build a class data set, and decide whether mean or median describes a 'typical room'.	CCSS 6.SP.B.4, CCSS 6.SP.B.5
[Week 2]	Scale-Model Studio https://www.bigfloorplans.com/lessons/scale-model-studio	40-55 min	Students measure the full-size plan, choose a scale, build a tabletop model, and check it by scaling back up.	CCSS 7.G.A.1, NGSS MS-ETS1

[Week 3]	The Remodel Budget https://www.bigfloorplans.com/lessons/remodel-budget	40-45 min	Students price flooring for measured rooms, apply a discount and sales tax, and find the break-even area between two options.	CCSS 6.RP.A.3.c, CCSS 7.RP.A.3
[Week 4]	Solar Study https://www.bigfloorplans.com/lessons/solar-study	40-50 min	Students orient the plan to north, model a simplified sun path with a lamp or the real sun, log which windows get light, and relocate one window.	CCSS MP4
[Week 5]	Plan vs. Real https://www.bigfloorplans.com/lessons/plan-vs-real	40-50 min	Students measure the 1:1 print, compare with the plan dimensions and compute percent error and the average error.	CCSS 7.RP.A.3, CCSS MP6
[Week 6]	Paint the Room https://www.bigfloorplans.com/lessons/paint-the-room	40-50 min	Students find the study's paintable wall area from the plan, subtract the door and window, and order paint for two coats.	CCSS 6.RP.A.3, CCSS 7.G.B.6
[Week 7]	Line of Sight https://www.bigfloorplans.com/lessons/line-of-sight	25-35 min	Students predict on paper what can be seen from a doorway, then test the sight-lines with string on the floor.	CCSS 7.G, NGSS MS-PS4-2

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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 7 lessons above, one per week or two per week.
- [Final month]: post-assessment, student presentations, report results to the funder.

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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):

- Areas: 60, 90, 90, 110, 150. Find the mean, median and range. (Data Walk)
- Scale 1 in = 4 ft. Real room 14 x 18 ft. Model dimensions? (Scale-Model Studio)
- Option A costs 3x + 150 and Option B costs 4x (x = square feet, before tax). Find the break-even area. (The Remodel Budget)
- 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?"]

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8. Standards alignment

- CCSS 6.SP.B.4 - https://www.thecorestandards.org/Math/Content/6/SP/B/4/
- CCSS 6.SP.B.5 - https://www.thecorestandards.org/Math/Content/6/SP/B/5/
- CCSS 7.G.A.1 - https://www.thecorestandards.org/Math/Content/7/G/A/1/

- NGSS MS-ETS1 - https://www.nextgenscience.org/dci-arrangement/ms-ets1-engineering-design
- CCSS 6.RP.A.3.c - https://www.thecorestandards.org/Math/Content/6/RP/A/3/c/
- CCSS 7.RP.A.3 - https://www.thecorestandards.org/Math/Content/7/RP/A/3/
- CCSS MP4 - https://www.thecorestandards.org/Math/Practice/MP4/
- CCSS MP6 - https://www.thecorestandards.org/Math/Practice/MP6/
- CCSS 6.RP.A.3 - https://www.thecorestandards.org/Math/Content/6/RP/A/3/
- CCSS 7.G.B.6 - https://www.thecorestandards.org/Math/Content/7/G/B/6/
- CCSS 7.G - https://www.thecorestandards.org/Math/Content/7/G/
- NGSS MS-PS4-2 - https://www.nextgenscience.org/pe/ms-ps4-2-waves-and-their-applications-technologies-information-transfer

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9. Research basis

- Lowrie, T., Logan, T., Harris, D., & Hegarty, M. (2018). The impact of an intervention program on students' spatial reasoning: student engagement through mathematics-enhanced learning activities. Cognitive Research: Principles and Implications, 3, 50. https://doi.org/10.1186/s41235-018-0147-y
- Hawes, Z. C. K., Gilligan-Lee, K. A., & Mix, K. S. (2022). Effects of spatial training on mathematics performance: A meta-analysis. Developmental Psychology, 58(1), 112-137. https://doi.org/10.1037/dev0001281
- 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

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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.

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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.

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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 "Measure the House: a middle-school STEM semester on one life-size floor plan." [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.