CREATING WITH BUILDING BRICKS
4-H Special Interest Club Resource Guide

Illinois 4-H *(prepared by Amy Henschen, amylh@illinois.edu)*



SPECIAL INTEREST CLUB BASICS

A Special Interest Club (also known as a SPIN Club) is a club that focuses on one topic. SPIN Clubs typically meet for a minimum of 6 sessions. SPIN Clubs can be run by 4-H staff or screened volunteers. SPIN Clubs let families commit to a shorter time frame than a year-round club. Clubs can meet a few times a week for a few weeks, or a few times a month for a few months! They can also be hosted over short time spans, like over Spring Break. Work with your local families to figure out what will be an ideal schedule to get maximum participation.

Youth ages 5 to 12 are the sweet spot audience to target for building brick-focused clubs. Cloverbud age youth (ages 5-7) should be in separate clubs than their older counterparts since they have different abilities and developmental needs. It's a good idea to cap the number of members in your club based on the age of participants and the number of teen or adult helpers who will be present. Capping the first club a staff person or volunteer offers at 10 youth is a good way for the club leaders to get their feet under them! For Cloverbud-age youth, encourage parents to stay for the meeting and assist (but make sure they don't take over their kids' builds). Teen Teachers, youth leadership team members, and other older youth can be great at helping at, co-teaching, or even leading these types of clubs.

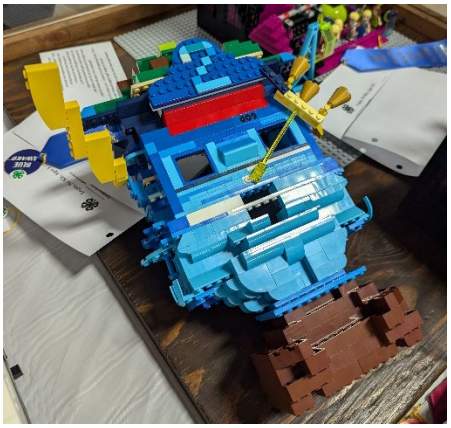
You can charge a club fee for your SPIN Club to help offset supply costs. If parts, like building bricks, are going to be reused for future groups, spread those initial purchase costs out across multiple club incarnations if possible (for example, if the county invests in $40 supply boxes for each youth, charge $20 for your first set of club members, and $20 the next time you offer it to cover that cost). In addition, staff are encouraged to get all participants to enroll as 4-H club members and pay the $20 4-H club enrollment fee. This allows them to enter the Creating with Building Bricks project (if they are at least 8 years old) and enter a building brick exhibit at the county show or fair.

It's a good idea to provide youth an opportunity to share and celebrate their learning at the end of the SPIN Club's meeting schedule. This culminating event can take place at the last regular meeting or be its own separate event.

A variety of resources related to SPIN Clubs are available on the 4-H Contacts staff portal under the SPIN Club folder.

BUILDING BRICK EXHIBIT OPPORTUNITIES

It's a good idea to know what youth can build to display their mastery at the local show or fair so you can prepare youth for those exhibit opportunities. You may even choose to structure your club around some of those build types. An outline of the exhibit opportunities is below. It is also available (with example images for each build type) in the project resource guide at go.illinois.edu/4HBuildingBrickResources.



- **Art**: Exhibit one visual art piece created with building bricks as the medium. This includes things like sculptures and mosaics. Pieces in this category are judged on art principles.
- **Building**: Exhibit one building constructed with building bricks, such as a house or skyscraper. Replicas of existing buildings, such as a personal home, are allowed in this category.
- **Creature**: Exhibit one real or imaginary animal, monster or person created with building bricks. This category includes domestic animals (like pets and farm animals), wild animals (current or extinct), as well as fantasy creature builds (like dragons, aliens, monsters, and unicorns). All creatures must be brick built (no mixed and matched minifigures are allowed).
- **Functional**: Exhibit one non-mechanical item built from building bricks that can be used in the real world, like a jewelry box, pencil cup, or phone charging stand.
- **Mechanical**: Exhibit one device constructed with building bricks, that includes mechanical movement to accomplish a real-world task. Use of gears and technic style elements is encouraged. Example builds include a functioning clock, candy vending machine, etc. Mechanical builds will frequently combine various

simple machines like levers, pulleys, screws, and axles to achieve tasks. Mechanical builds can use motor elements.

- **Object**: Exhibit one full-size or scaled (shrunk down or enlarged) replica of a real-world object, like a food item, household object, or plant, built from building bricks. Leave any brand logos off your replica.
- **Scene/Storytelling**: Exhibit one scene that tells a story built with building bricks. Scenes will typically display some type of action (or implied action). Scenes can be realistic or set in imaginary worlds. Builds can incorporate items from the other exhibit categories (such as creatures, buildings, and vehicles), as well as minifigures.
- **Vehicle**: Exhibit one vehicle built with building bricks. This category includes things like cars, boats, trains, airships, and spaceships.
- **Virtual**: Create an original build using virtual building brick software such as BrickLink Studio, MecaBricks Workshop, or LeoCAD. Exhibits in this category can be of anything that would fit in any of the other build categories but are instead built digitally.

CLOVERBUD-AGE CLUBS

Hosting a Cloverbud (ages 5 to 7) building bricks club is a great way to attract youth to 4-H and have them ready to transition to a project when they turn 8! Check out the tips below on working with this age group.

Build-Focused Club

A simple way to structure a building bricks club for Cloverbuds is to center each meeting around a specific themed build challenge, and then have each youth do an end-of-meeting share out about their build to the other club members. This allows youth to get practice talking about their work and coming up with stories for their builds.

An example 60-minute meeting structure is:

- 5 minutes: Pledges, introduction/icebreakers
- 35 minutes: Build challenge
- 15 minutes: Share time
- 5 minutes: Clean up time

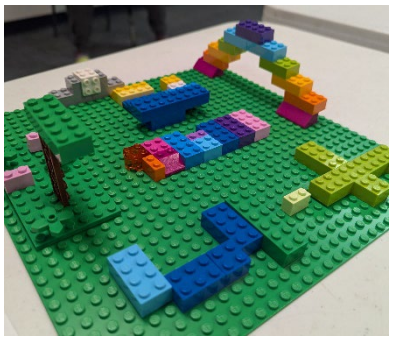
It's important to make sure the build challenges are not too easy, and leave room for creativity, or kids will get bored. For example, asking kids to make an animal out of bricks won't be enough to last a whole meeting, but asking them to build a zoo animal and the exhibit it lives in will! Some build challenges that focus on smaller tasks (like building a boat or car) can be structured to have kids test their current builds and make improvements to their designs over the course of the class. For all challenges, it's a good idea to set size parameters.

For the first few meetings, the club leader should make their own example builds for the challenges so youth who like having examples have an idea of what they are working towards. Depending on the group, the leader may continue to do their own builds each week going forward or stop if deemed unnecessary. During build time, club leaders should proceed around to each child's work area and ask them questions about their build. If youth finish early or don't seem like they are in the mood to put in a lot of effort, leaders can suggest ways they can expand their build, or give them an additional challenge.

Here are two tested club meeting outlines for a series based on this model. Additional build challenges in the back of the book can be substituted in to replace any of the listed challenges or can be used to make your own club plan.

Building Challenge Club (Session 1)

Meeting 1



- **Theme:** Who Are You?
- **Build Prompt:** We want to know who you are and what makes you, you! Make one or more builds that show off who you are – things you like, your family, your pets, etc. Then share your builds with the group and introduce yourself!
- **Suggested Parameters:** n/a
- **Share:** Youth introduce themselves and talk about how their builds reflect them.

Meeting 2

- **Theme:** Let's Go Shopping!
- **Build Prompt:** Together we're going to create a shopping center! Let's brainstorm together what kinds of stores we might find at a mall, and what types of things all stores have (like employees, cash registers, and stuff to buy). Then each of you can pick a kind of store you want to build and create it!
- **Suggested Parameters:** All stores need to fit on one 16x16 plate, be sized for minifigures, and include a door.
- **Share:** Place all the builds together on a table lined up to create a mall or outdoor shopping center. Have youth meet around the table near their own store and have each one share about their build.
- **Special Materials:** A variety of minifigures to be store employees and shoppers; a variety of accessory parts to help with store themes (i.e. pets for pet shop, coffee cups for coffee shop, books for bookstore, etc.). You can pre-bag the accessory parts into obvious groupings (restaurant materials, record shop, musical instrument shop, art store, hardware store, etc.)

Meeting 3

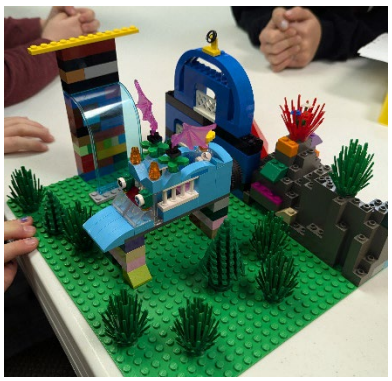
- **Theme:** Bridge Building
- **Build Prompt:** Today we're going to work in teams to build bridges! Your bridges need to hold as much weight as possible, and allow cars to get from one point to another across this gap (show your gap).
- **Suggested Parameters:** Place equal height books or other items 12 inches apart from each other on a table. Have youth build bridges that can span from one item to the other. You can set a minimum bridge width as well (for example: you can build a small car model and tell kids the bridge must be wide enough for the car to cross).
- **Share:** Have each team bring up their bridge and put it across the span while other teams watch. Load the bridge with weight and see if it breaks.
- **Special Materials:** Ruler, items to use as weights to test bridges (like cans of soup). Make your set up more realistic by cutting out a construction paper river to flow between your two bridge end points.

Meeting 4

- **Theme:** Home Sweet Home
- **Build Prompt:** Today we're going to build a room or house inspired by a minifigure! Choose a minifigure and then build the room of their dreams!
- **Suggested Parameters:** Either the build should fit on one 16x16 plate or one 32x32 baseplate
- **Share:** Take youth around the room as a group to each room or house, and have the creator give everyone a tour of the house/room features.
- **Special Materials:** At least one minifigure per child. You can encourage them to bring their favorite minifigure from home for this challenge. To make the challenge more fun, include some fun minifigures (like a minifigure with an animal costume, a king or queen, character from a movie or tv show, etc.).

Meeting 5

- **Theme:** Creature Feature
- **Build Prompt:** Today we're going to build our own mythical creatures and their environment! So, build a fun monster, dragon, unicorn, or whatever other creature you can think of, and create a build around them that tells a story!
- **Suggested Parameters:** Build should fit on one 32x32 baseplate.



- **Share:** Take youth around the room as a group to each build and have the kids explain their creature and what is happening on their build.
- **Special Materials:** n/a

Meeting 6

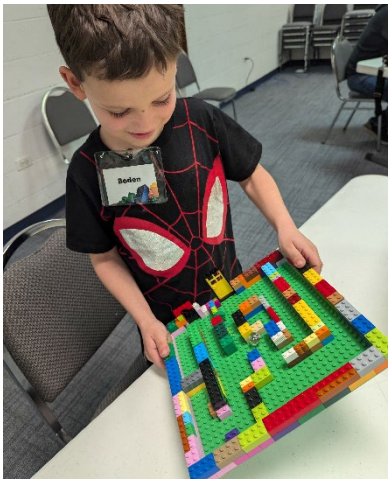
- **Theme:** Checkered Flags
- **Build Prompt:** Today we're building our own wheeled vehicles that travel as far as possible when released down our ramp! During build time today, come up with a design, then test it on the ramp, and then make any needed adjustments. Repeat the testing process until your vehicle can go as far as possible!

- **Suggested Parameters:** Vehicles must all carry one minifigure driver each.
- **Share:** Have youth explain their vehicle build and tell the group about their driver, then host a multi-heat contest to see whose vehicles can go the furthest off a fixed ramp. Invite parents to return to the meeting early to watch the contest.
- **Special Materials:** Minifigures to use as drivers; tape measure. Create a ramp out of foam board or wood to make testing the vehicle builds more fun!

Building Challenge Club (Session 2)

Meeting 1

- **Theme:** Marble Mazes
- **Build Prompt:** Today we're designing marble mazes! A marble maze is a handheld maze that people move in different directions to try to get a marble to move from the starting places to the maze exit! Your maze can include fun ideas that make it harder for people to complete, like zig zags, stairs, tunnels, and more! Let people play your maze when you're finished and try playing theirs!



- **Suggested Parameters:** Mazes should fit on one 32x32 stud baseplate. Mazes must have a starting point and an exit.
- **Share:** As youth get bored, or finish their mazes, they take breaks to go around and try the mazes of the other members. At the end of the meeting, youth introduce themselves to the whole group and talk about their favorite part of their maze builds.
- **Special Materials:** 1 marble per youth

Meeting 2

- **Theme:** Mansion Mayhem

- **Build Prompt:** Together we're going to create a mansion! Let's brainstorm together what kinds of rooms might we find in a big fancy mansion? Then each of you can pick a type of room you want to build. We'll put all of our rooms together to create our mansion!
- **Suggested Parameters:** All rooms should be a minimum of one 16x16 plate large, be sized for minifigures, and include a door.
- **Share:** Place all the builds together on a table lined up to create a mansion. Have all youth meet around the table near their own room and have each share about their build.
- **Special Materials:** A variety of minifigures to be people who live at the house; accessory pieces to help bring realism to the house.

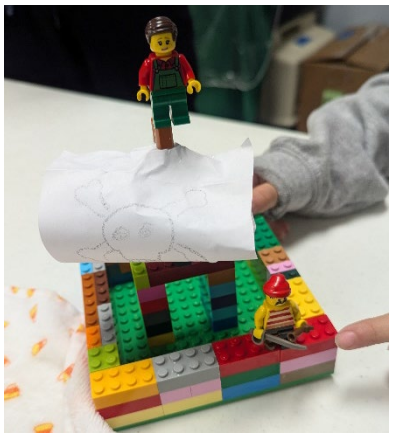
Meeting 3

- **Theme:** We're Going to the Zoo!
- **Build Prompt:** Today we're taking a trip to the zoo! Each of you needs to build an animal and their zoo exhibit! Before we get started let's talk about the kinds of things animals need in their exhibit! Once you are done with your animal and enclosure, if you have extra time you can make other things to add to our zoo, like a snack stand or restroom.
- **Suggested Parameters:** Exhibits must fit on a 32x32 baseplate.
- **Share:** Place all the builds together on a table to create a zoo. Have all youth meet around the table near their own exhibit and have each share about their build.
- **Special Materials:** If available, you can provide a variety of building brick animals to youth to create their exhibits around instead of having to build their animals. Youth may be able to bring animals from their building brick sets at home.

Meeting 4

- **Theme:** Float Your Boat
- **Build Prompt:** Today we're going to build our own building brick boats! Your boats will need to float your captain and first mate across our very own lake. As you build today, test your boat designs on our lake before our final float at the end of class!
- **Suggested Parameters:** Boats should hold at least 2 passengers and need to cross the "lake" (tub of water) without sinking. Depending on the size of your "lake" you may need to set a maximum boat length.

- **Share:** Have all youth bring boats up to the lake and gather around. Have each kid talk about their boat, captain, and first mate. Then time how long it takes for their boat to cross the lake once you turn on the fan!
- **Special Materials:** Plastic tub to fill with water (the larger the better!); box fan or other directional fan; towels/paper towels for each kid's workspace and the testing area; stop watch or phone timer; you can optionally provide cardstock and other materials youth can use to create sails (along with scissors).



Meeting 5

- **Theme:** Spaceship, spaceship, spaceship!
- **Build Prompt:** Today we're going to build our very own spaceships! They can be realistic or fantastical! You can build just the ship, or an environment for your ship to dock or explore!
- **Suggested Parameters:** n/a
- **Share:** Take youth around the room as a group to each build and have the kids explain their spaceship and any story around their build.
- **Special Materials:** n/a

Meeting 6

- **Theme:** Brick Carnival
- **Build Prompt:** Today each of us is going to build a person-sized carnival game for our fellow club members to play! Let's brainstorm about the types of games we've seen at carnivals and theme parks, and then each go create our own masterpieces!
- **Suggested Parameters:** Tasks in each game need to be able to be completed (i.e. not be impossible).
- **Share:** Have youth play each other's games! Consider providing small prizes for each kid to give out as participation prizes at their game! Invite families to come for the last 20 minutes of the meeting to try out everyone's games!
- **Special Materials:** A variety of balls of various sizes (like marbles, ping pong balls); painters tape; cardboard; paper & markers for youth to make signs for their games.

BUILD & STORY CLUB

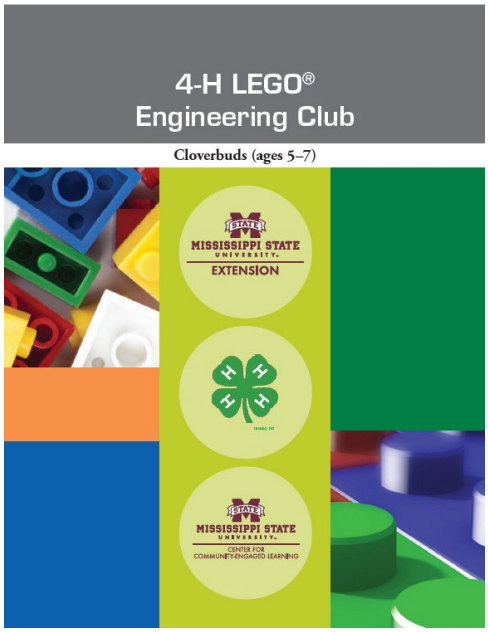
Mississippi State University Extension has three downloadable levels of curriculum called 4-H LEGO® Engineering Club that combines small, themed builds with related stories and reflection

activities. The curriculum features objectives, material lists, directions for activities, and discussion questions. Some of the activities in the curriculum use things other than building bricks. Outlines of the three levels of curriculum and links to the resources are outlined below. Additional books may be made available online in the future.

4-H Lego Engineering Club (Volume 1)

Link to curriculum and resources: https://extension.msstate.edu/4-h-lego-engineering-club

Curriculum Outline:

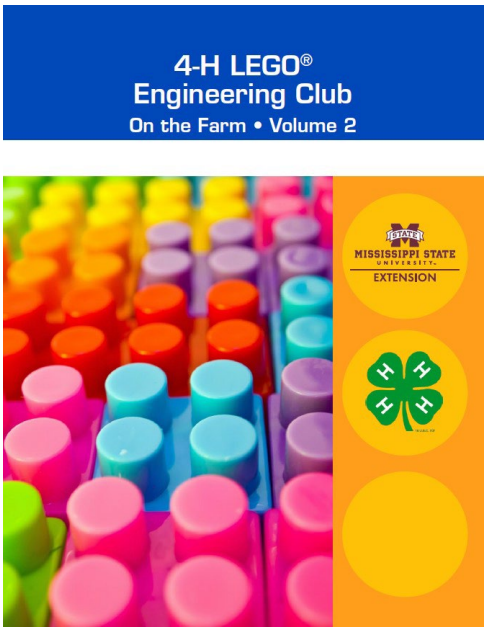


- Lesson 1: Amazing Mazes
  - Task: Kids build a marble maze
  - Book: *Who Moved My Cheese?*
  - Theme: Obstacles & challenges
- Lesson 2: Monster Mash
  - Task: Kids build a monster
  - Book: *Where the Wild Things Are*
  - Theme: Imagination & creativity
- Lesson 3: Picture Puzzles
  - Task: Kids put puzzles together in groups, with team members blindfolded
  - Book: *What's Different?*
  - Theme: Finding solutions to problems
- Lesson 4: Tall Towers
  - Task: Kids work in teams to build the tallest towers
  - Book: *The Tower*
  - Theme: Teamwork
- Lesson 5: Building Bridges
  - Task: Kids work in teams to build the strongest bridges
  - Book: *Pop's Bridges*
  - Theme: Engineering for strength
- Lesson 6: Safe Ships
  - Task: Kids build ships that can take 2 minifigures across a pool of water
  - Book: *The Pop-Up Book of Ships*
  - Theme: Flotation and buoyancy

4-H Lego Engineering Club On the Farm (Volume 2)

Link to curriculum and resources: https://extension.msstate.edu/publications/4-h-lego-engineering-club-the-farm-volume-2

Curriculum Outline:



- Lesson 1: Pack a Lunch
    - Task: Kids build a lunchbox
    - Book: *How Did That Get in My Lunchbox? The Story of Food*
    - Theme: Healthy eating
- Lesson 2: Store Summer in a Bale
    - Task: Kids build a tractor
    - Book: *Hey, Hey, Hay! A Tale of Bales and the Machines That Make Them*
    - Theme: Farm equipment
- Lesson 3: Soybean Picnic
    - Task: Kids build a picnic table
    - Book: *Auntie Yang's Great Soybean Picnic*
    - Theme: Growing crops
- Lesson 4: Pumpkin Patch
    - Task: Kids build a pumpkin
    - Book: *The Pumpkin Book*
    - Theme: Life cycle of plants
- Lesson 5: Sleepy Farm
    - Task: Kids build a farm
    - Book: *Sleep Tight Farm: A Farm Prepares for Winter*
    - Theme: How farmers care for land
- Lesson 6: Creepy Crawlies in the Garden
    - Task: Kids build bugs
    - Book: *Grandpa's Garden*
    - Theme: Natural resources in gardening

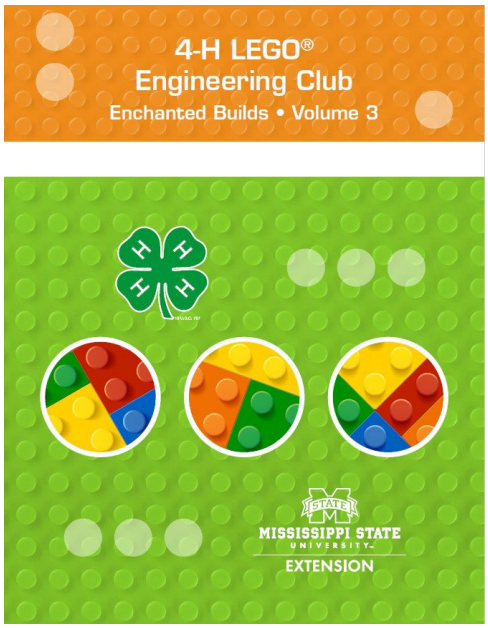
4-H Lego Engineering Club Enchanted Builds (Volume 3)

Link to curriculum and resources: https://extension.msstate.edu/publications/4-h-lego-engineering-club-enchanted-builds-volume-3

Curriculum Outline:

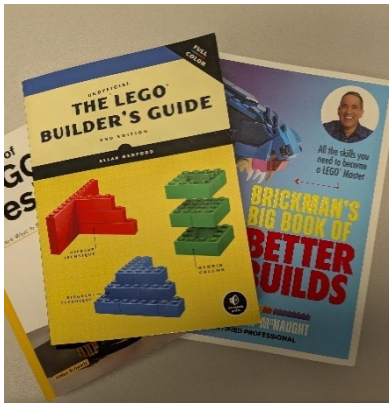
- Lesson 1: Building Shelters with the Three Little Pigs
    - Task: Kids work in pairs to build a shelter
    - Book: *The Three Little Pigs: An Architectural Tale*
    - Theme: Shelters
- Lesson 2: Simple Machines with Rapunzel
    - Task: Kids build a pulley that can lift a basket of marbles
    - Book: *Keep it Simple, Rapunzel! The Fairy-Tale Physics of Simple Machines*
    - Theme: Simple machines
- Lesson 3: Measuring with Jim and the Beanstalk
    - Task: Kids measure building bricks and use them to measure other objects
    - Book: *Jim and the Beanstalk*

    - Theme: Measuring
- Lesson 4: Zipline Challenge with Humpty Dumpty
    - Task: Kids build a zipline
    - Book: *After the Fall: How Humpty Dumpty Got Back Up Again*
    - Theme: Speed and slopes
- Lesson 5: Force and Motion with Cindy-Elly
    - Task: Kids build balloon-powered cars
    - Book: *Cindy-Elly*
    - Theme: Relationship between force and motion
- Lesson 6: Engineering Bridges with the Three Billy Goats Fluff
    - Task: Kids build a bridge
    - Book: *The Three Bill Goats Fluff*
    - Theme: Bridge designs



4-H CLUB

Hosting a special interest club for 4-H members (ages 8 and up) can allow youth interested in building bricks the opportunity to get a club experience and participate in the Creating with Building Bricks project (including having the ability to exhibit a building brick creation at their local fair or show). Though you may have youth of all 4-H ages interested in participating, we recommend narrowing the age range so there is less age spread and ability spread among members. Opening the club to 8 to 10-year-olds or 8 to 12-year-olds is ideal. Start by offering a 60-minute club meeting and get to know your members. After an initial 6-session offering, consider if you want to extend the meeting time beyond 60 minutes to allow youth to complete more detailed builds.



We recommend centering meetings with this age group around build challenges, but also recommend teaching important building brick concepts at each meeting. A number of books referenced in the project resource guide provide a good idea about the types of concepts you can teach (and relate to that week's challenge). Our favorites for teaching building concepts are *The Unofficial LEGO Builder's Guide* by Allan Bedford and *Brickman's Big Book of Better Builds* by Ryan McNaught. Leaders can provide in-person instruction on the concepts or find existing YouTube tutorials that cover the topics. These playlists of tutorials from Playwell Bricks are a good starting point to find ideas to cover.

- Basic Brick Tutorials (https://www.youtube.com/watch?v=1ZhnC9QEOUI&list=PLaEL-gouFOoHpTmu4GL2hJnSeT-g2EJXo&ab_channel=PlaywellBricks):
- Intermediate Brick Tutorials (https://www.youtube.com/watch?v=bT09TF2r44k&list=PLaEL-gouFOoFDFsV5KUC3dZJ96epfr8u0&ab_channel=PlaywellBricks)
- Advanced Brick Tutorials (https://www.youtube.com/watch?v=naYB3qUAmNs&list=PLaEL-gouFOoGzRAZsF9pejCJePi9O-XQV&ab_channel=PlaywellBricks)

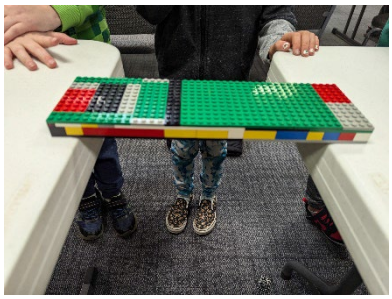
Meetings can alternately be structured around the different exhibit classes youth can enter at their local show (i.e. a week on art, a week on vehicles, a week on creatures, etc.).

Example Club Outline (Building Concept Focus)

Meeting 1: Quilt Square

- **Build Challenge:** Create one 32 by 32 stud quilt square design (place all the plates together in a quilt display at the end of the meeting).
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Patterns; repetition; color theory; prototyping on paper

Meeting 2: Bridge Bust



- **Build Challenge:** Build a bridge that can span across an opening and can hold as much weight as possible.
- **Suggested Parameters:** Set your own opening distance based on materials you have on hand and the difficulty level you'd like to set. 12 inches is a good distance between objects to span. This could be a good team challenge.
- **Possible Concepts to Teach:** Building strong connections: overlapping bricks, staggering, and bracing

Meeting 3: Down on the Farm

- **Build Challenge:** Create a farm scene from building bricks.
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Scale
- **Special Materials:** Brick scale farm animals to populate the builds (or have youth build their own out of bricks)

Meeting 4: Minifigure Habitat Challenge

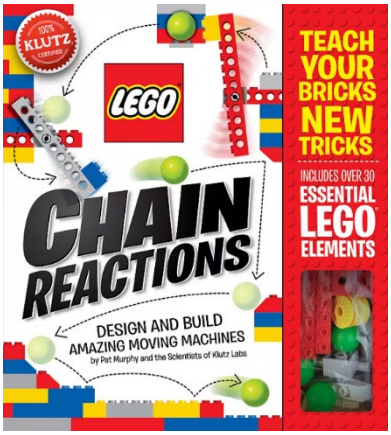
- **Build Challenge:** The natural environment of an animal, plant or other organism is known as a habitat. Build one or more LEGO "habitats" (small scenes, 8x8 studs in size where a minifigure lives) inspired by different minifigures. Each scene should tell us something about the minifigure or give us more insight into how they live.
- **Suggested Parameters:** Each habitat should be built on an 8x8 plate and feature 1 minifigure. If mostly younger kids you can go up to 16x16 plate.
- **Possible Concepts to Teach:** Simplifying details; storytelling

- **Special Materials:** Minifigures, 8x8 plates, accessories
- **Notes:** Google "LEGO habitats" to find lots of examples and tutorials about putting together these builds. Youth who build fast can be encouraged to build a second or third habitat.

Meeting 5: Secret Base

- **Build Challenge:** Create a secret base to house a superhero or supervillain and populate it with super stuff (vehicles, traps, etc.).
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Storytelling
- **Special Materials:** Minifigures, accessories

Meeting 6: Chain Reaction Contraption



- **Build Challenge:** Inspired by Rube Goldberg machines, build a chain reaction contraption out of brick elements that can accomplish a simple task.
- **Suggested Parameters:** Contraptions should have at least 3 steps to accomplish the task. This could be a good team challenge.
- **Possible Concepts to Teach:** Simple machines; gears
- **Special Materials:** You may need to supplement builds with things like marbles or technic pieces (technic pieces can be borrowed from old LEGO robotics sets around your office).
- **Notes:** The book *Lego Chain Reactions* by Klutz can help you plan this session.

Example Club Outline (Exhibit Class Focus)

Meeting 1: Building

- **Build Challenge:** Build your dream home.
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Building strong connections: overlapping bricks, staggering, and bracing

Meeting 2: Creature

- **Build Challenge:** Build your dream pet (real or imaginary) and accessories for them (toys, bed, etc.).
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Balance; using bricks to change directions

Meeting 3: Vehicle

- **Build Challenge:** Build the vehicle of your dreams (car, cycle, ship, etc.).
- **Suggested Parameters:** n/a
- **Possible Concepts to Teach:** using axles and wheels; drive systems

Meeting 4: Object

- **Build Challenge:** Build the dinner party of your dreams (place setting, food, etc.).
- **Suggested Parameters:** n/a
- **Possible Concepts to Teach:** Scale; simplifying details, patterns
- **Special Materials:** A table with tablecloth and other brick built or regular dinner table decorations (place mats, candles, flower centerpiece, etc.)

Meeting 5: Functional

- **Build Challenge:** Build bookends to complement the book of your dreams (inspired by your favorite book or genre of book)
- **Suggested Parameters:** Book ends should support at least 1 book!
- **Possible Concepts to Teach:** Balance; scale; color theory
- **Special Materials:** Ask kids to bring their favorite book to class, or bring some books from your office or local library to class for the build session.

Meeting 6: Storytelling

- **Build Challenge:** Build a scene out of one of your dreams (or nightmares) that tells a story.
- **Suggested Parameters:** Build should fit on one 32x32 stud baseplate.
- **Possible Concepts to Teach:** Storytelling; using accessories; adding details; storyboarding
- **Special Materials:** Variety of minifigures and accessories to help populate the stories

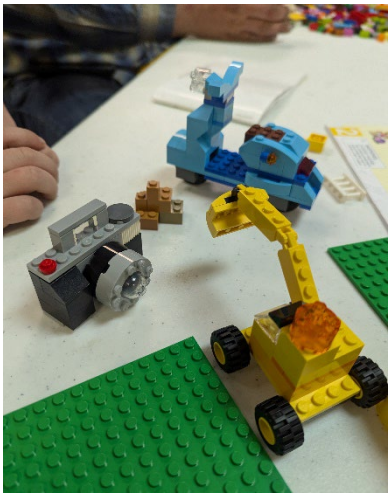
GENERAL DOS AND DON'TS

Do have each set of club members set group agreements at your first meeting. Group agreements are norms or ground rules that group sets together about how they will interact with each other, the space, and the materials. After they are set, consider writing your group agreements on a poster board that you hang up at every meeting.

Don't forget to include the 4-H pledge at your meetings! Do be sure to have a printed copy of the pledge text for youth to read from (don't assume they know it), and consider doing the pledge in a call and repeat manner for younger members or youth with reading difficulties.

Do encourage youth to bring limited pieces from home for certain builds (like a mini-figure or animal). Be sure if you allow this, to have enough supplies on hand for all youth in case some don't have something to bring from home.

Don't let youth bring their own bricks to meetings except for the limited cases above. It is really hard to keep parts that are 4-H's separate from ones youth bring from home, and inevitably some parts will either get absorbed into the 4-H collection, or head home that aren't meant to.



Do have some directions on hand for kids who need structure for the first few meetings. The recommended creative box comes with directions you can use for this purpose.

Don't be afraid to let kids who don't want to follow the prompt/theme just build what they want. Usually if you let them do this for a meeting or two, they eventually build comfort with the environment and format and join in the fun.

Do have kids wash their hands before building (and after if they are using shared materials).

Don't use your own beloved LEGO parts from home unless you are okay with things going missing or getting damaged.

Do have each kid work at their own table, and separate tables from each other if possible so it's hard for kids to get their parts mixed up with those of other members. This also makes clean up easier.

Don't open your club up to all ages of 4-Her! It will be a lot harder to meet the needs of all the youth and come up with challenges that they can all accomplish if you have a very wide age range.

Do use nametags for all members, leaders, and helpers at all meetings! See resources section for a template!

GETTING MATERIALS

You can run a building brick club with a hodge podge of bricks that all the youth share, or can purchase individual brick sets for each kid so kids all work from the same set of materials (the latter is an especially good idea for Cloverbuds). Some challenge designs work better with one supply set or the other.

If you are starting from scratch, the following are recommended materials to get started (1 of each per kid, and 1 per leader):

- 1 LEGO Classic Large Creative Brick Box – The list price for this set is $60, but these can typically be found on sale at big box retailers for around $30 to $40. This item or similar sets are also frequently a Black Friday deal.
- 1 green LEGO baseplate (32x32 stud size) – These typically cost around $8, but can be found on sale at big box retailers on occasion.

These sets include basic bricks as well as a few arches, doors, windows, wheels, and eyes. Put pieces of painter's tape on the outside of each brick box and have the kids write their names on their box so they use the same box each session. This helps them take ownership of their materials and take better care of them (and be invested in getting all their parts back in the box at the end of the meeting).

In addition, try to build a small collection of minifigures you can use for build challenges (often kids have their own they can bring if you don't purchase any).

To collect a hodge podge of bricks to use instead of individual supplies, put a call for building brick donations out in your 4-H newsletter, and ask if you can put it out in any Extension newsletters that go out to other constituents like Master Gardeners. You may be able to get free donations this way. If you have the ability to offer compensation or incentive to folks, currently bulk LEGO in good condition sells for about $5 per pound.

You can also look to buy LEGO in bulk online from places like Facebook Marketplace, Craigslist, and eBay, and in-person at thrift stores, flea markets, and building brick stores like Bricks & Minifigs and The LEGO Store. If you are looking to purchase individual parts (like animals and minifigure accessories) to build out your accessories or elements for specific build challenges you can buy individual parts directly from LEGO's Pick a Brick site (https://www.lego.com/en-us/pick-and-build/pick-a-brick) or from the Bricklink Marketplace (https://www.bricklink.com/).

If your office has old LEGO robotics kits (like the NXT or EV3 era sets) these can be cannibalized for technic parts and motors that can be used in builds (especially vehicle and functional builds).

If you are working primarily with low-income students, used LEGO can be purchased (for just the shipping cost) by educators at the First Book Marketplace at https://www.fbmarketplace.org/brick-play-boxes-432638. Each box guarantees a fun surprise with a variety of building brick shapes and sizes and an array of colors to inspire builders. Boxes are 6.5" x 8.25".

Another alternative to obtaining materials for your office or club to own and store is partnering with a site that already owns bricks. You can then offer the club at that site to get access to those materials. This would include places like local libraries, afterschool programs, or community centers.

If you have older youth participating and have access to computers or tablets, but no building bricks, you can host a club that builds virtually using free software such as BrickLink Studio, MecaBricks Workshop, or LeoCAD. Check the project resource guide for more info on these options, along with tutorials on using them.

ADDITIONAL BUILD CHALLENGE IDEAS

There are seemingly endless ideas for build challenges all over the internet, but we've curated some we like below. Be sure to also check the outlines for both Cloverbud and regular age clubs for a lot of build ideas that can be adapted for the age of your club members. The Lego Librarian is a great source of build challenge ideas (https://legolibrarian.com/category/lego-club/) as is the LEGO Family site (https://www.lego.com/en-us/family/activities - you must create a free LEGO Insiders account to access these activities).

- **Catapults:** Create a catapult that can launch a small item like a marshmallow (this can be a competition to see who can create the catapult that can launch the furthest)
- **Bug:** Create a detailed model of a bug or arachnid and its surroundings
- **One-Color Build:** Build something dynamic and interesting while only using one color of brick/element
- **Name Build:** Make your name out of 3-D letters, and then add details to make it reflect your personality
- **Parade Float:** Is there a holiday or celebration coming up? Have youth each build a minifigure-sized float, and put on a parade themed to that holiday.
- **Mega Fig:** Have each kid pick a minifigure and try to build a "Mega" enlarged version of that figure out of bricks
- **Upside-Down Build:** Tape or adhere baseplates to the underside of your tables, and have kids build something upside-down!
- **Robots:** Have kids build their own robots and come up with a background on what the robots can do
- **Castle:** Design a castle and a story about who lives there!
- **Mini Golf Course:** Kids design challenging holes for a miniature golf course and then play the course (course should be scaled down from regular size – like potentially marble sized, or ping pong sized – pre-build clubs for kids to play with or have them build their own).

- **School:** Kids design and populate the different rooms and places in a school (gym, science room, library, art room, music room, etc.)
- **Build Your Own Board Game:** Kids design their own board games out of bricks, and then play each other's games

- **Mirror World:** Have kids make a build that has two different styles, so that one half of the build is built in one style and another in another style (like flowery, then spooky, or colorful then black and white)
- **Dog Show:** Make brick-built dogs and have youth exhibit them in a mini dog show!
- **Pirate Ships:** It's the age of pirates! Design a pirate ship that can hold at least 4 crew members.
- **Treehouses:** Build the treehouse of your dreams out of bricks!
- **Road Trip:** Have each kid build something to represent a place they could go on vacation (i.e. sandcastle, St. Louis Arch, ski hill, theme park ride, etc.). Take a "road trip" to visit all the builds! This could be based on the LEGO "postcard" style builds (example: https://www.lego.com/en-us/product/italy-postcard-40818)

OTHER RESOURCES

Nametags

Be sure to create nametags for your meetings and encourage all members, leaders, and helpers to wear them! You can use this template from Mississippi State Extension or create your own: https://uofi.box.com/s/5joplw5po8xkgfs4gi9urgw0087amij0.

Coloring & Activity Sheets

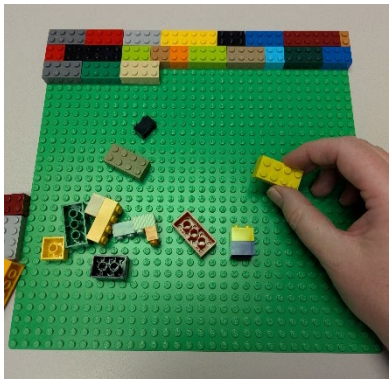
Sometimes youth will arrive early for your meetings or finish their builds early. It's a good idea to have things for youth to do in those situations. You can download building brick themed coloring and activity sheets from various places on the internet.

Game & Activity Ideas

Online you can find a ton of short game and activity ideas you can do with youth to help supplement and enliven your meetings (and help build a sense of community among your members). You can also purchase things like the LEGO Fun Family Challenges card deck for ideas (https://www.lego.com/en-us/product/fun-family-challenges-book-5009222).

- **Building Brick Memory:** Create a detailed LEGO scene, cover it, and take it away, and then see how many details people can remember; alternately cover it and take it away, change a few things, and re-share it with the group and see if they can find the differences.
- **Building Brick Scavenger Hunt:** Hide LEGO pieces and have the group find them (you can also have kids take turns hiding a set number of pieces or minifigures in a designated space, and then let the other kids loose finding them). An alternative to this is for 2 teams to hide a set number of pieces of "treasure" in the building, then build a LEGO map to show the way to the treasures. They then exchange maps and each team goes on a treasure hunt.
- **Blindfold Build:** Make a small build. Provide youth the same pieces to create that build but have them do it blindfolded, using only touch to replicate it.
- **Team Step-by-Step Build:** Have a small build hidden behind something on the front table. Split the youth out into teams and give each team the parts to replicate the hidden build. Tell each team they can send one kid up at a time to look at the build, and then that kid can

come back to the table and add one step to their group's copy of that build. Youth should keep sending one kid up at a time until they think they have replicated the build. They can race to do this faster than other teams.



- **Cover the Baseplate Race:** Each kid races to cover one 32x32 stud baseplate with bricks as fast as possible
- **Building Brick Charades:** Create cards that have objects on them and put the cards into a hat. Have each person draw a card and then re-create what's on the card out of building bricks. Have other club members guess what each person is trying to make!
- **Brick-Tac-Toe:** Split kids into pairs and have them build their own brick-built tic-tac-toe boards and pieces, and then play a few rounds against each other.
- **Mosaic Wall:** To accommodate folks who arrive early or lose focus during the meeting, consider attaching some baseplates to a wall or other vertical surface (like the side of a bookshelf or storage cabinet) and letting youth add their own mosaic style creations to this wall.
- **Egg Race:** Each kid builds their own egg and spoon out of Lego (they can't interlock with each other). Once kids have them built, they all race from a start to finish carrying their eggs.

Promotion

There are lots of ways you can promote your Building Bricks SPIN Club to get participants! First, be sure to include information about your club in the local county 4-H newsletter. If you are willing to take youth from neighboring counties, work to get the club listed in their newsletters as well. Consider setting up registration for the group as an event in the ZSuite system. This allows you to set a maximum capacity for the club, and to charge a supply fee.

You can make a flyer to promote the club and distribute it through school backpacks, at community locations, and at other 4-H events. Use this Adobe Express template as a starting point, if desired: https://go.illinois.edu/BrickClubFlyer.

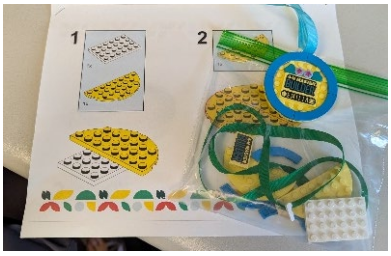
If you have any events that 4-H is going to have a booth at (like your local 4-H yearly kick-off celebration, school open house, or community event) hand out information

about your club there! If possible, have a mini build challenge activity at the booth to encourage kids to get a taste of what they'll do in the club. For example, challenge kids to make a build inspired by a 4-H project and then leave it for display. Print foldable tents with project names on them so people can get ideas (and display these table tents by the completed builds). Also include pieces of paper for people to label their work! Download materials for this activity at https://uofi.box.com/v/BrickMiniBuild.

- **Mini-build challenge sign** – to put in clear acrylic tabletop sign holders
- **Project names** – to cut and fold into table tents and place in a basket for people to draw from (cardstock recommended)
- **Created by papers** – to cut and have youth put their first names on to display with their builds

Recognition

At the end of your set of SPIN Club meetings, it's nice to do something to recognize your members! That can be as simple as giving them a certificate, to something more elaborate like creating personalized minifigures for each of them, or making them a medal to build out of LEGO bricks. Customize this Adobe Express certificate for your needs: https://go.illinois.edu/BrickCertificate. Contact Amy Henschen for more details on creating your own recognition build kit at amylh@illinois.edu.



SUPPORT

Reach out to Illinois 4-H Senior Program Lead Amy Henschen with questions or to set up a consult on getting a club going! She's happy to share her resources, enthusiasm, and experience (amylh@illinois.edu).

CREDITS

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