

Quick Start Guide for LEGO® Education

BuildToExpress Extension Activities

The following information provides a refresher on the BuildToExpress process. For more extensive Quick Start information, consult the *BuildToExpress Guide and Activity Pack* or the teacher's guide you received during your professional development session.

The BuildToExpress Process

The BuildToExpress process involves four phases:

1. **Challenge:** The students are challenged to express an idea through the use of LEGO® elements.
2. **Building:** Each student builds a model using the LEGO elements provided in the BuildToExpress Set to express his or her ideas about the Challenge.
3. **Sharing:** Each student shares his or her model and ideas with group members.
4. **Recap:** The students review and reflect on what they have expressed.

As with all BuildToExpress activities, each student is asked to build a model that expresses his or her response to a Building Challenge. When the models have been built, students are asked to share their ideas, one student at a time, by talking about their builds within their groups.

For the activities outlined in this activity pack, it is recommended that students work independently when building their models, and in groups of four to six when sharing their models. Having students work in groups promotes collaboration by requiring students to actively listen to each other when sharing their models, and by encouraging students to integrate group members' ideas into their own understanding.

The exact time taken for the whole process depends on the sophistication of the topic, the age of the students, and the amount of experience that the students have using BuildToExpress. The activities in this pack have been created so that each activity takes approximately 1.5-2 hours to complete, including:

- Preparation and teaching time before the BuildToExpress process begins.
- Approximately 15 minutes to complete each of the four Challenge Cards.
 - Approximately 3-5 minutes to prepare and introduce each Building Challenge
 - Approximately 3-4 minutes for students to build a model
 - Approximately 5-7 minutes of sharing and discussion time
- Additional time to document student models and ideas using the Recap and Reflect Worksheets.
- Recap and discussion time in larger groups or as a class to summarize learning and to reflect on the experience.

The activities in this pack provide teachers with information about how the Building Challenges can be integrated into ongoing classroom instruction. All four Challenge Cards can be addressed sequentially in the context of one long instructional period or broken into several lessons throughout a week or unit of study. When working with younger elementary students, it is recommended that no more than two Challenge Cards be completed in sequence at one time. This helps to ensure that young students remain actively engaged in the process.

Note: Cross-curricular Extensions have been included with each activity to provide teachers with ideas to extend learning and further develop the ideas and concepts discussed throughout the BuildToExpress process.



Tip:

If the Challenge Cards are being used over several instructional blocks, make sure to remind students of the Building Challenges they have already completed in previous sessions. Reviewing completed Recap and Reflect Worksheets can be very helpful when doing this.

Rules for Building Challenges

The following rules have been created to establish a framework for the successful completion of the Building Challenges outlined in the Challenge Cards for each activity.

1. Everyone in the group takes a turn at reading the Challenge Cards aloud. Alternatively, the teacher may decide to read the next Challenge Card to the whole class.
2. It is important to complete all four cards in the set. Each card should be read aloud. When the group has finished working on a particular card, it is set aside.
3. Whoever reads the card aloud is also responsible for making sure that:
 - a. Everything on the card is read aloud.
 - b. All the instructions on the card are carried out.
 - c. Time limits are used during the building phase. Each build should take 3-5 minutes.
 - d. Everyone is allowed to explain the model they have built.
 - e. Everyone in the group listens to what is being said.
 - f. The card is put aside after all the instructions have been completed.
4. Each person in the group “builds their thoughts” every time a Building Challenge is read.
5. When building time is up, everyone puts the bricks that are not part of their model into their BuildToExpress Set and closes the lid. Then, everyone is ready to share his or her model.
6. Everyone explains the reasoning behind the model that he or she has built.
7. The only person who can comment on a model or the explanation behind it is the person who built it.
8. It is possible to learn more about a student’s model by asking open, nonjudgmental questions.
Note: With time and practice, older or more-experienced students may be capable of asking these kinds of questions independently. In general, it is recommended to have students focus on saying “Thank you for sharing,” and have the teacher ask for additional details using facilitating questions.
9. It is important to track and inventory the LEGO® elements in each set to refrain from loaning or exchanging bricks with one another.
10. Keep the models on the building plate until the teacher says it is time to put them away.



Tip:

After students are familiar with the Rules for Building Challenges, it is a good idea to review them periodically or post them in the classroom. A student-friendly, reproducible list of rules for the building and sharing phases of the BuildToExpress process can be found in the Support Material section of this activity pack.



Terminology

The following is a list of key terms that appear throughout the activity pack and other important documents.

- **BuildToExpress Session:** a continuous period during which students are engaged in building, sharing, and listening; each Activity Plan in this pack outlines a complete session, including the BuildToExpress Challenge Cards
- **BuildToExpress Sets:** the specially selected LEGO® elements that students are given for the purpose of building their LEGO models
- **Building Challenge:** a statement giving clear and concise directions for the subject matter of a model
- **Challenge Cards:** cards that each contain a specific Building Challenge and instructions for sharing with a group; these cards come in sets of four, relating to the same topic
- **Free Build:** a period of time during which students are allowed to use the LEGO elements found in the BuildToExpress Sets to build anything they choose; this time is valuable because it allows students to familiarize themselves with the different LEGO elements included in their sets
- **LEGO Elements:** the individual LEGO bricks, minifigures, building plates, and other components that make up the BuildToExpress Sets
- **Open-Ended Questions:** questions that require the students to elaborate on their models; there is no right or wrong answer to an open-ended question
- **Warm-Up Activities:** a series of single build statements designed to follow the BuildToExpress process from start to finish; these activities are not connected to any specific curriculum and are meant to be used to get students more familiar with the BuildToExpress process

Implementing this Activity Pack

It is likely that upon implementation of this activity pack your students are already familiar with the BuildToExpress process and are ready to use it frequently as a communication tool in the classroom. When students are familiar with the rules and routine of the process, they should be ready to work through one of the curriculum-based activities found in this activity pack.

The following steps are helpful for making BuildToExpress part of your daily classroom practice.

1. Before beginning the BuildToExpress process with students, select an Activity Plan that meets class and curricular needs from the Activity Plans provided. The Activity Plan and Challenge Cards selected should fit naturally into the ongoing instruction that is taking place in the classroom.

Consult the Before You Begin section of each Activity Plan for suggestions on the types of activities and collective experiences students should have as a foundation before being asked to think critically and discuss their thoughts on a particular curriculum concept.

2. When an Activity Plan has been selected, introduce the students to the Challenge Cards provided. Explain each section of the card to the students and remind them of the procedure and rules they learned while completing the Warm-Up activities for this activity pack. It is a good idea to review the process, timing, and Rules for Building Challenges regularly.
3. Once you have completed the Warm-Up activities, guide students through the first curriculum-focused activity as outlined in the Activity Plan. Make sure to provide them with prompts when it is time to move on to a new section and remind them of the process and rules.

It is important to emphasize that:

- The Challenge Cards tell students what they need to do.
- The rules of the BuildToExpress process should be followed and respected in order to produce the best classroom results.



Tip:

For additional tips to run a successful BuildToExpress session, refer to the Facilitating the BuildToExpress Process section of the Quick Start Guide in this activity pack.

- There is no right or wrong answer – it is all about creating a deeper dialogue, sharing ideas, and expressing thoughts.
 - The LEGO® elements that a student selects represent exactly what that student says they do. Each person determines and describes the meaning of his or her own model.
4. After each BuildToExpress session, it is a good idea to take some time to discuss the experience as a class. Talk about what worked well, what could be improved the next time, what students enjoyed, how they feel they benefited from the experience, and how they feel it helped them express themselves. The Self-Evaluation Rubrics provided in this activity pack can be used to facilitate this step.
 5. Begin with one or two BuildToExpress sessions per unit of study at the beginning of the school year or term and gradually integrate them into regular classroom activities, leading into weekly or daily use, as fits your classroom schedule. The more students experience the process, the greater the improvement in their communication and critical-thinking skills.
 6. In this activity pack, detailed Activity Plans have been provided for several different subject areas, along with an extensive list of additional Building Challenges linked to specific curriculum standards. Use these resources with the Customizable Activity Plan, Challenge Cards, and Weekly Planning Calendar to incorporate BuildToExpress into your daily classroom practice. Share your ideas with colleagues.

Using the BuildToExpress Activity Plans

Each Activity Plan in this activity pack takes the teacher through the following material using BuildToExpress.

Overview

The Overview is a brief description of the activity outlined in the Activity Plan, highlighting the concepts and types of Building Challenges that will be explored by students throughout the session.

Connect to Curriculum

This section highlights key curriculum standards with which the BuildToExpress process can be integrated.

Before You Begin

Here teachers are provided with suggestions on the types of activities and collective experiences students should have as a foundation before being asked to think critically and discuss their thoughts on a particular curriculum concept. This may include suggestions for: important vocabulary that should be defined or reviewed, brainstorming ideas, class reading or audiovisual material, discussion topics, or research topics.

Vocabulary

Located in the right-hand margin, this list defines grade-level-appropriate words related to the main theme of the activity.

Build and Share

This section directs teachers to the Challenge Cards for the Building and Sharing phases of the session.

Reflect on the Experience

This section encourages teachers to make use of the Recap and Reflect Worksheets available in the Support Material section of this activity pack. The worksheets are an excellent tool for students to document the building process so that they may remember and reflect on their models at a later time.

Note: The Recap and Reflect Worksheets are especially useful if a series of Challenge Cards is being completed over multiple sessions.



Tip:

Additional tips and tricks to facilitating the BuildToExpress process can be found in the Organization and Management section of the Quick Start Guide of this activity pack.



Tip:

For a full list of the curriculum connections for all of the activities found in this Activity Pack, please see the Curriculum Grid.

Extensions

This section includes suggestions for cross-curricular activities that can be used to follow up and expand upon student ideas and experiences after a BuildToExpress session has been completed.

Facilitating Questions

This space has been provided for teachers to document possible facilitating questions before beginning the session or to document effective or interesting questions after a session that worked well in encouraging students' thinking.

Notes

The Notes section is a space for teachers to write any additional notes or reminders they might want to reference when facilitating an activity.

Challenge Cards

The Challenge Cards included with each activity outline the Building Challenges and steps the students will complete during the session.

Using the BuildToExpress Challenge Cards

All of the BuildToExpress challenges outlined on the Challenge Cards in this activity pack can be completed with the standard BuildToExpress Set.

The Challenge Cards are an important element in the BuildToExpress process. They have been developed and tested in collaboration with experienced BuildToExpress teachers. The cards define the topic and ensure that all students begin the process from the same starting point. The Challenge Cards also function as a step-by-step guide for students and help the process to flow smoothly and naturally.

Each set of Challenge Cards follows the same four steps.

- **Think About:** Establish the students' current understanding of the topic.
- **Remember:** Ask students to think back and recall a time when the topic impacted their lives.
- **Imagine:** Ask students to use creativity and imagination when thinking about the topic.
- **Conclude:** Ask students to summarize and draw conclusions.



Tip:

For more information about creating high-quality facilitating questions, see the Facilitating Questions section in the Quick Start Guide of this activity pack.



Tip:

For additional information on using the Challenge Cards, see the Using BuildToExpress Challenge Cards section in the Quick Start Guide of this activity pack.



Tip:

Challenge Cards can be created using the Challenge Card Template provided in this activity pack or by using the Challenge Card Creator found on the *BuildToExpress Guide and Activity Pack* DVD or the LEGO Education Academy Web site for those who attended a professional development session.

Tip:

Consider making extra copies of the Challenge Cards that can be cut out, laminated, and attached to a key ring. This makes the cards more durable and keeps them from getting lost, so they can be used again and again.

Using the Recap and Reflect Worksheets

After each BuildToExpress session, it is a good idea for teachers to document the build created and to encourage further student reflection by using one of the Recap and Reflect Worksheets included in this activity pack. The Recap and Reflect Worksheets are designed to document the building process so that students can reflect on it later. Students can use one of the five different reproducible worksheets provided in the activity pack to document their models. Each worksheet can be used by students to document their ideas in a style that they find to be most relatable.

Encourage students to select and use one of the five different Recap and Reflect Worksheets.

- Use the T-Chart to encourage students to document their experience by comparing and contrasting their ideas.
- Use the Mind Map to encourage students to document more expansive, nonlinear ideas.
- Use the Journal Entry to encourage students to document their ideas and structure their thoughts through a clear story.
- Use the Flowchart to encourage students to document their ideas and how they flow into and connect to each other.
- Use the Modify the Build Chart to encourage students to document the process through which they created their model and how they went back to make additional changes after the sharing phase.

Teachers can choose to assign a particular worksheet to help students develop different ways of organizing their ideas. It is a good idea to use the Recap and Reflect Worksheets if the class is completing an Activity or Challenge Card set over more than one BuildToExpress session.

Note: For a better understanding of the kind of ideas students should be documenting, see the Example Recap and Reflect Worksheet available in this activity pack.



Facilitating the BuildToExpress Process

Facilitating is an important part of the BuildToExpress experience. Teachers are responsible for setting an open and thoughtful tone in the classroom that allows students to express themselves freely. Please review the material from your *BuildToExpress Professional Development Course* or the *BuildToExpress Teacher's Guide and Activity Pack DVD*. This material does not provide a complete training on the BuildToExpress process.

A good facilitator should:

1. Set the scene for the students by making sure they have a working knowledge of the topic. There are suggestions for this in the Before You Begin section of each Activity Plan.
2. Make sure that the BuildToExpress process and rules are being followed at all times.
3. Ask and model open-ended, nonjudgmental questions.
4. Refrain from praising or criticizing individual students. It is a good idea to simply say "Thank you for sharing" as a general statement after each student has expressed his or her ideas. When the session has been completed, praise should be offered to the class as a whole for the quality of their ideas and expression.

Preparing for a Session:

- Post the rules and/or process overview for using LEGO® Education BuildToExpress, which are provided in this activity pack and on the *BuildToExpress Teacher's Guide and Activity Pack DVD*, along with any additional rules specific to your class.

- Choose a relevant activity from the activity pack to match your teaching program or create an original activity plan using the Customizable Activity Plan and Challenge Cards included in this activity pack.
- Students will work independently during the Building phases but can be divided into small groups of four to six to complete the Sharing phases of the session.
- Print the relevant set of Challenge Cards for each group of students so that they have the cards in front of them during the session. You could also project these on a whiteboard or other device.
- Set expectations to match each student's age and level of development. The activities found in this pack are designed with specific grade levels in mind. All the activities have been created with grade-level-appropriate vocabulary and curriculum connections.

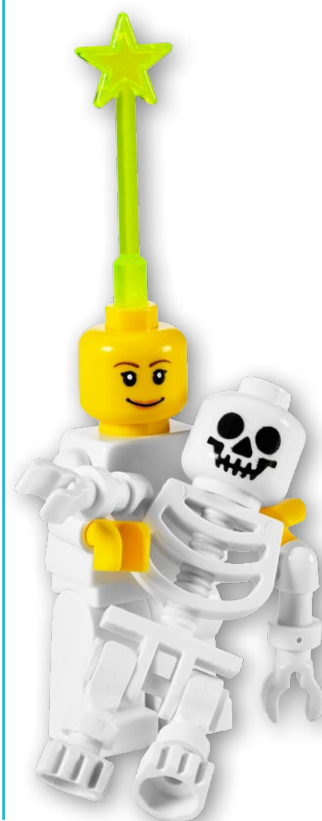
When Building Models:

- Read one Challenge Card at a time to the students, or have older students read the cards in groups. Ensure that they carry out the Building Challenges together at the same pace and within the suggested time frame.
- Assign one student in each group to the role of “timer” to track the time spent on each build and let their group members know when time is almost up. With younger students, teachers may wish to assume this role. It is a good idea to give the class a verbal warning when building or sharing time is almost up.
- Consider playing music while students are building their models. This creates a more-relaxed atmosphere and provides an audio cue for students to conclude their building.
- Limits can be set for the number of elements used for each build. This is done to prevent students from being distracted by building elaborate models instead of thinking critically about the elements they have selected for their models.
- Consider having groups of students complete different challenges from one another. For example, one group of students could create a model to represent the setting of a story, while another could create a model representing the main character.
- It is a good idea to repeat the Building Challenge aloud once before students begin to build, once during the building time, and again before students share their models. This helps students maintain their focus on the challenge at hand.

When Sharing Models:

- It is a good idea to use a “talking stick” or other device to visually identify who is sharing their model. This helps ensure that the sharing/discussion process goes as smoothly as possible.
- Have the students put away all of the loose LEGO® elements and put the lid on their BuildToExpress Set before they begin to share their models.
- It is a good idea to set time limits for the students to share their models. Sharing a model usually takes 30 to 60 seconds.
- Have students place their building plates on the lid of their closed BuildToExpress container and push the containers away from them before they begin to share their models. Only the student currently sharing should be able to reach his or her model.
- Always ask open-ended questions when students are sharing their models. Always use inclusive, nonjudgmental language when students are presenting. There is no right or wrong answer.
- After each student has shared his or her model, the teacher should always say “Thank you for sharing.” It is important to refrain from praising or criticizing individual students. Praise the whole class by commenting on the quality of the stories and explanations of the models.
- It is a good idea to have students explain what they remember or liked about another student's model. They can then follow up with the individual who built the model for more details.

Note: Examples of models, stories, and effective facilitating questions have been provided with the Example Builds in the Quick Start Guide of this activity pack.



When Concluding the BuildToExpress Session:

- Document your students' models through pictures or videos. Consider posting pictures of the completed models in the classroom or on a class Web site.
- Use the reproducible Recap and Reflect Worksheets to document builds, experiences, and ideas for later reference or to illustrate student expression and thinking to parents or community members.
- Distribute the Self-Evaluation Rubric and encourage students to reflect on how effectively they used their time and how their BuildToExpress session made them feel. This does not need to be done after every BuildToExpress session but should be done periodically over the course of the school year.

Developing Facilitating Questions

Facilitating questions are used to stimulate a student's critical thinking about the models they have built. They should be used during the sharing phase of the BuildToExpress process.

If a student's explanation of his or her own model is unclear or very brief, you can aid the process by asking open-ended questions. It is important to be nonjudgmental when discussing a student's model. Remember that the students are to build a model that *represents* an object or concept, not a model of an object or concept.

An open-ended question does not prompt a single correct answer. Open-ended questions are formulated to help students share as much as possible about what is on their minds. They prompt participants to express their own thoughts rather than giving a standard "right" answer. These questions are also formulated to stimulate elaboration and not just a "yes" or "no" answer. It is important that the person asking the questions does not impose his or her own views or make assumptions about the student's model.

Note: Pay attention to the words that students use to describe their models. If a different term is used when asking a student to describe their model, it could change the meaning of their model. Try and use the same vocabulary that a student used when discussing a model.

Ask open-ended questions like the following to encourage students to share as much as possible:

- What does your model mean?
- What is most important about your model?
- How does the element/color/placement help explain your idea?
- What would someone else emphasize/notice about your model?
- What would you like someone to ask about your model?

| Instead of This.... | Try This... |
|--|--|
| "Is the main character a good person?" | "How do you see the main character?" |
| "Would you want to visit this place?" | "Why might someone want to visit this place?" |
| "Does that part of your model represent the main character?" | "Could you tell me about the different parts of your model?" |
| "What is this person like?" | "Tell me more about this person." |

The LEGO® BuildToExpress process offers a fun and innovative way to enable students to improve their communication skills. An important part of this process involves encouraging students to use appropriate vocabulary for their age and developmental level.

Make sure to use grade-level-appropriate vocabulary. For example, while one might ask a 2nd- or 3rd-grade student to *tell* you why a part of their model is *important*, one would ask a 4th- or 5th-grade student to *explain the importance* of a part of their model. It is important to challenge the students' vocabulary and communication skills without discouraging them.

Organizing the Classroom

Organization Tips:

- Number the BuildToExpress Sets before distributing them to the students and assign the same set to students each time they participate in a BuildToExpress session.
- Consider making a "LEGO® sweep" where students search the floor for loose or missing LEGO elements as part of your BuildToExpress routine. Gather spare elements after each session and periodically sort them back into the BuildToExpress Sets. It is a good idea to keep a box or cup by the door for students to deposit loose elements as they are found. These can later be sorted back into the BuildToExpress Sets using the Element Survey. Encourage students to only use LEGO elements from their own BuildToExpress Sets. This helps to ensure that each set contains all of the elements for the next BuildToExpress session.

Classroom Management:

- Encourage students to use a "LEGO Office." This can be a folder used as a cubicle to prevent distractions and to encourage them to focus on their own ideas and builds without comparing their models to other students' work.
- When students are sharing their models, instruct them to first clear all the unused elements into the BuildToExpress Set, close the set, and place the plate with their completed model onto the lid. This helps to ensure that students are not distracted by the unused LEGO elements during the Sharing phase.
- Periodically change the order in which the students share their models. Ask them to take turns by going clockwise around the group, when arranged alphabetically, by height, or by age.

Tip:
For theme-specific vocabulary, refer to the Vocabulary section found in the right-hand margin of each Activity Plan.

Tip:
For more classroom management and organization tips, see the *Teacher's Own Tips* video in the Support Material section of the *BuildToExpress Teacher's Guide and Activity Pack* DVD.

