

45004

LEGOeducation.com





# **Table of Contents**

Introduction	3
Learning Grid	5
Getting Started Activity BEGINNER - Explore the Café	6
Lessons	
Exploring parts of a whole and one-to-one correspondence	8
Recognizing and creating patterns	10
NTERMEDIATE - Double Up  Exploring quantities and making comparisons	11
NTERMEDIATE - Café Bingo Matching and exploring 2D and 3D shapes	13
ADVANCED - Let's Go Shopping  Exploring money and price	14
ADVANCED - Trading Bricks Practicing trades and matching shapes	16
Appendix	18





# **Café+** Teacher Guide Introduction

### Who is the material For?

The Café+ Teacher Guide is for preschool teachers. It is designed to help teachers develop children's early math skills, such as counting, matching quantities, simple addition and subtraction, and recording data.

#### What is it for?

Designed for preschool children, the café theme naturally incorporates math, enabling children to explore math-related concepts as they build café items in a familiar setting. As they role-play café scenarios, they'll practice counting by pricing their items, and explore trade as they play customer and café owner!

The Café+ Teacher Guide provides fun and engaging opportunities for exploring math-related concepts. Using the Teacher Guide, preschool teachers can facilitate exciting math lessons in which children practice simple addition as they decide how many bricks (i.e., ingredients) they need for their recipes. They will follow simple building instructions using the recipe cards, challenging them to transfer 2D shapes to 3D! The children will even investigate money and trade using the special coin bricks. Most importantly, the lessons will enable children to become problem solvers, enhancing their creativity as they work together to build and role-play!

# How are the learning objectives achieved?

Throughout the lessons, strategic questions will guide children through the process of applying math skills. Furthermore, the LEGO® DUPLO® building activities will reinforce creativity, inquiry, and exploration.

Refer to the table of contents for a brief description of lesson topics. Each lesson is labeled as beginner, intermediate, or advanced, based on the skills and knowledge needed to complete the lesson. The Teacher Guide includes one Getting Started activity designed to introduce the children to the basic ways they will be using the Café+ set. Introducing this activity first will give the children a solid foundation for completing the other six lessons. Subsequent lessons may be selected and adapted according to what is most relevant and appropriate for the children.

# **Appendix with Images**

The appendix contains printable images. Some of these can be used to extend the lessons and to help demonstrate children's ability to transfer what they have learned.

The appendix also includes inspiration photos of lesson-related models. The inspiration photos can be used to help the children connect with the lesson, and may also be used as part of the activities or as building inspiration when they are constructing their own models.

# **Customizing to Your Class Needs**

The Café+ lessons can be tailored to your needs and the needs of your class. One Café+ set can be used with up to six children at a time, working in pairs. Children need a lot of practice before becoming proficient at building with a partner, and this is a good way to promote collaboration. If the children are ready, you may incorporate partner building in all of the activities.

The activities can be done in centers or stations around the classroom, or in small groups. Personalizing the scenarios and content to fit your classroom dynamics and physical setup will help the children connect with the lessons. For instance, referencing a café in your community could help the children make a connection to the café theme.

The Café+ set and Teacher Guide can be combined with any other LEGO® DUPLO® set for even more learning possibilities. Combining other DUPLO sets with the Café+ set will also provide more building opportunities.

Expect differentiated learning outcomes based on each child's existing knowledge, vocabulary, and experience. Children's verbal responses, models, and solutions will vary. Support the children's learning by adapting the discussion questions and making connections that are relevant to them.

#### **Lesson Structure**

Each lesson is structured according to a natural learning flow called the *LEGO® Education 4C approach*, which promotes successful learning experiences. The Connect, Construct, and Contemplate phases, which are the first three phases of each lesson, can be done in one session. The Continue phase is more challenging and can be completed in a later session.

#### Connect

During the Connect phase, discussions will spark children's curiosity and activate their existing knowledge while preparing them for a new learning experience.

## Construct

In this phase, the children will participate in a hands-on building activity. As their hands create models of people, places, objects, and ideas, their minds will organize and store new information related to these structures.

## Contemplate

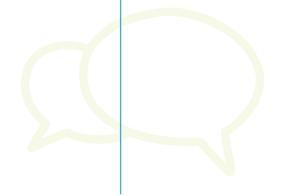
During the Contemplate phase, children are given the opportunity to reflect on what they have done and to talk about and share insights they have gained during the Construct phase of the lesson. This phase encourages children to develop their problem-solving skills as well as techniques that are crucial for mathematics, and all areas of life!

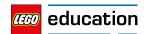
#### Continue

New challenges in this phase build upon the concepts learned previously in the lesson, providing an opportunity for children to apply their newly-acquired knowledge during extension activities. Because the children may not be ready to complete the Continue phase until they have repeatedly practiced the skills learned earlier in the lesson, this phase can be done during a later session.

## Did you notice?

The Mathematics guidelines from the National Association for the Education of Young Children (NAEYC) and HeadStart have been used to develop the Café+ lessons. Please refer to the learning grid for an overview of the learning values referenced throughout this Teacher Guide. The learning goals listed at the end of each lesson can be used to determine whether or not each child is developing the relevant early math skills. These bullet points target specific skills or pieces of information that are practiced or presented during each lesson.





Café+ Learning Grid	Use mathematical terms, such as positional language, number names, shape names, etc.	Count using number names, and begin to recognize the number of objects in a set	Categorize by one or more attributes and compare two or more objects	Recognizing and creating increasingly complex patterns	Sequence numbers or events	Explore simple operations, such as adding	Record simple data in a chart or graph
Getting Started Explore the Café	•	•					
Birthday Celebrations		•			•		
Food Patterns	•		•				
Double Up!	•	•	•				
Café Bingo	•		•		•		
Let's Go Shopping		•				•	
Trading Bricks		•			•		



# Getting Started Activity **Explore the Café**

For up to 4 children

## **Materials needed:**

Café+ set (45004), in-box menu card, in-box recipe cards, printable order sheets (see appendix; one per child), pencils, inspiration photos (optional)

### Connect

- Encourage a discussion about cafés and restaurants.
- · Consider asking questions like:
  - What cafés do we have in our community?
  - What do people do at cafés?
  - What kinds of food do cafés offer?
- Teach the children how to take an order like a server at a café. Explain that servers need to listen carefully and sometimes take notes to ensure they get the correct order.
- · Give each child a printable order sheet.
- Explain that you will be a customer and that you will tell them several items you
  would like to order. Each order sheet lists different items, so make sure to order
  at least one item from each sheet.
- Ask the children to place a check mark in the box below each item you order to ensure they get your order right!
- Model how to use the menu by placing your order, pointing to each item as you "order" it.

#### Construct

- Tell the children that they are going to help build menu items for the café.
- Ask them to sit in a circle. Model how to choose a recipe card and build the item shown.
- Hand each child a recipe card showing a menu item you ordered earlier and encourage them to build the item. You may choose recipe cards that match their abilities and assist as needed.

# Contemplate

- Facilitate a discussion about the menu items the children have built.
- · Consider asking questions like:
  - Which menu item did you build?
  - How many bricks did you use?
  - How did you know how to build the menu item?

# Learning Outcomes

Children will:

- Explore the components of the Café+ set
- Begin counting as they build a menu item

# Vocabulary

Café+, menu, food, recipe, coins, pay, customer



Printable order sheets (see appendix)



Recipe cards (See in-box)

- Tell the children that you have discovered a delicious but secret type of cake. It's so secret that there is no written recipe!
- Explain that you are going to give them careful instructions for how to make this
  cake.
- Choose a "Secret Recipe" inspiration photo from the appendix. Look at the image
  and give verbal step-by-step instructions for building it. As you give the instructions,
  make sure to emphasize positional language as well as descriptive words about
  color and shape.
- Once the children have finished building, show them the chosen photo so they can see what you described.

Tip: To simplify this activity, give each child the bricks needed to build the cake.

# Did uou notice?

- Using mathematical terms, such as positional language, number names, etc.
- Counting using number names, and beginning to recognize the number of objects in a set





Inspiration photo (see appendix)





# **Birthday Celebrations**

For up to 4 children

## **Materials needed:**

Café+ set (45004), printable flags (see appendix), printable invitations (see appendix), scissors, glue (for printable flags), string (for printable flags), colored pencils, inspiration photo

# Connect

- Talk to the children about birthday celebrations. Explain that birthdays can be celebrated many ways.
- Ask the children to describe how they have celebrated their own or someone else's birthday.
- Consider showing a picture of a birthday party, and asking the children to describe what they see.

## Construct

- Tell the children that they are going to help build a birthday cake.
- · Ask them to sit in a circle. Show the inspiration photo of the birthday cake.
- Have the children count how many bricks are needed to make one piece of birthday cake.
- · Ask them to help you find the correct bricks. Model how to build a piece of cake.
- Place the inspiration photo in the middle of the circle and have the children work individually to find the necessary bricks and build one piece of cake.

# **Contemplate**

- · Facilitate a discussion about the birthday cake.
- Consider asking questions like:
  - How many pieces do we need to make a whole cake?
  - How many pieces do we need to make half a cake?
  - How many people does this cake feed? Remember that we want everyone to have a piece!
- Talk to the children about parts of a whole. Explain that each of them made part of the cake and put them together to make a whole cake consisting of four pieces.

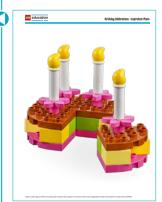
Tip: The printable invitations show the different fractions of the cake.

# Learning Outcomes

- Explore the concept of parts of a whole
- Count and practice one-to-one correspondence

# Vocabulary

birthday, celebration, party, cake, candles, pieces, part, whole

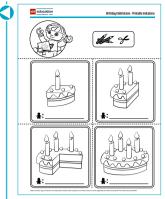


Inspiration photo (see appendix)

- Tell the children that birthdays can be a lot of fun but that parties take a bit of planning.
- Tell them that you are going to have a make believe birthday party for a friend (or your class pet, if you have one).
- Ask the children to consider what they need to do to prepare for a party and in what
  order they should do everything (i.e., first they need to send invitations, then make or
  buy party supplies, decorate, etc.).
- Hand out the printable invitations and flags and ask the children to cut out and decorate four of each; they can use the glue and string to finish the flags. Consider using paper plates, napkins, etc. to complete the party setup.
- Once the children are ready for the party, encourage them to role-play. Place the
  candles on the cake and ask the "birthday person" to blow them out! Ask the
  children to pass out one piece of cake to each guest.

# Did you notice?

- Counting using number names, and beginning to recognize the number of objects in a set
- · Sequencing numbers or events



Printable birthday invitations (see appendix)



Printable birthday flags (see appendix)





# **Food Patterns**

# For up to 5 children

## **Materials needed:**

Café+ set (45004), printable model cards (see appendix), scissors

#### Connect

- Tell the children that they are going to explore patterns.
- Ask the following questions to help them connect with the lesson:
  - What are patterns?
  - What are some examples of patterns?
    - · Point out some patterns around the classroom.
- · Tell the children that they are going to become a "living pattern."
- Ask them to stand in a circle. Tell them to put their hands on their heads, then their toes, then their heads again, and their toes again.
- Explain that this is a pattern and that parts of a pattern repeat, which means
  that once they understand the repeating order, they will know what comes next.
- Try adding another element (e.g., heads, toes, nose). Call out the pattern a few times as the children follow along, then stop suddenly and ask what comes next.
- · Tell them that now they are "patterning pros!"

#### Construct

- Tell the children that patterns can also consist of shapes and colors, and that they are going to build a food item that contains a pattern.
- Show the printable model cards, pointing out the different patterns.
- Ask each child to pick one of the cards and to replicate the food item shown.
- If necessary, help them sort the bricks they need by color, shape, or both!

# **Contemplate**

- Facilitate a discussion about patterns. Talk about the different kinds of patterns in the food items (e.g., point out that the burger ingredients have a pattern of colors and shapes).
- · Consider asking questions like:
  - What kind of pattern does your menu item have? Does it repeat colors, shapes, or both?
  - How many colors or shapes are in your pattern?
  - How many times does your pattern repeat?

#### Continue

- · Encourage the children to create their own patterns.
- Help them decide on colors and shapes they will use, gather the bricks, and build their patterns. Remind them that their bricks must repeat at least once in order for it to be a pattern.
- If they are ready, encourage them to build more complex patterns using different shapes or patterns with more components (e.g., an "ABCD" pattern).

# Did uou notice?

Observing the following skills can help you monitor whether the children are developing the necessary competencies in math.

- · Using mathematical terms, such as positional language and color and shape names
- · Categorizing by one or more attributes and comparing two or more objects
- · Recognizing and creating increasingly complex patterns

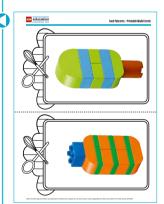
# Learning Outcomes

Unildren will:

- Sort by shape, size, and color
- · Practice making patterns
- Recognize patterns



patterns, repeat, color, shape, order



Printable model cards (see appendix)



# **Double Up!**

# For up to 4 children

## **Materials needed:**

Café+ set (45004), in-box recipe cards, inspiration photo, printable model cards (see appendix; one per child or pair of children)

# Connect

- Ask the children to stand in a circle. Tell them that you will be talking about size and quantity.
- Ask them to make themselves as tall as possible by reaching to the sky, then ask them to make themselves as short as possible by crouching down to the ground.
- · Show the inspiration photo of two sandwiches side by side.
- · Ask: Which is taller? Which is shorter? How can you tell?
- Ask the children to count and compare the number of bricks in each sandwich.
   Point out that the taller sandwich contains more bricks or "ingredients."

#### Construct

- Tell the children that they are going to help build menu items with double the regular ingredients.
- Explain that "doubling" means adding the same number of bricks to what they
  currently have, meaning that their menu items will be twice as big!
- Hand out an in-box recipe card to each child or pair of children.
  - Note: the orange sandwich and birthday cake are on different sides of the same card, so two children will have to share the card, or you will have to make a copy of one side.
- Ask the children to build their menu items by following the recipe card.

- Once the children have completed their menu items, hand out the printable model card that matches each child/pair's recipe card. These contain the menu items with double the ingredients the children used originally.
  - Note: The sandwiches have double the fillings, but not double the "bread" bricks.
     When building the doubled version of the birthday cake and the pastry at the same time, you will have to substitute the bright yellow 2X2 bricks for the pale yellow 2X2 bricks in the birthday cake.
- Ask the children to build their menu items again, this time using the doubled up recipe.
  - Note: The bricks used to make the original menu item will be needed to build the doubled up version.
- Once the children have finished building, ask them to share their models with the others and talk about how many ingredients they used for each version.

# Learning Outcomes

Children will:`

- · Learn about doubling quantity
- Practice counting and recognizing sets of numbers
- · Compare two or more objects

# Vocabulary

double, count, ingredients, doubled up, twice, compare, size, tall, short, wide, big, small, quantity



See In-box recipe cards



4 Printable model cards (see appendix)

# **Contemplate**

- Facilitate a discussion about the two different recipes the children used.
- · Consider asking questions like:
  - How many bricks did you use in the first recipe? How many in the second?
  - Which recipe contains more ingredients? How can you tell?
- Encourage the children to make comparisons. Have them look at the in-box recipe cards and the printable model cards side by side.
- · Ask questions like:
  - Which item is bigger?
  - Which is taller?
  - Which is wider?

#### Continue

- Explain that double the amount of ingredients can sometimes mean double the price.
- Ask the children to help you count enough coin bricks for the following scenarios by starting with the original number of coin bricks in a row and then placing an additional coin brick next to each one:
  - The flatbread sandwich costs one coin. The doubled up flatbread sandwich costs twice as much. How many coins does it cost?
  - The yellow pastry costs two coins. How much should the doubled up yellow pastry cost?
  - The regular birthday cake costs three coins. How much should the doubled up birthday cake cost?

# Did you notice?

- Using mathematical terms, such as positional language, number names, etc.
- Counting using number names, and beginning to recognize the number of objects in a set
- · Comparing two or more objects
- Exploring simple operations, such as adding





Inspiration photo (see appendix)



# Café Bingo

# For up to 4 children

## **Materials needed:**

Café+ set (45004), printable model cards (see appendix; one per child), scissors, an opaque bag or container that can hold 20 LEGO® DUPLO® bricks, paper, colored pencils, camera (optional)

#### Connect

- · Ask the children about their favorite games.
- Talk about how people play games. Be sure to mention that people take turns during games and congratulate the winner.
- Tell the children that they are going to play bingo. Ask if anyone has ever played before and if they have, ask them to explain the game.
- As a group, agree on some rules or guidelines everyone should follow as they play.

#### Construct

- Preparation: Before this activity, collect all the bricks used in the four printable game cards and place them in an opaque bag or container.
- · Hand out one printable model card to each child.
- Explain how to play the game:
  - The teacher pulls out one brick from the bag/container.
  - The children look at the brick, then at their individual game cards to determine if there is a match. The child whose card shows the matching brick collects it.
  - Repeat until all the bricks are used up. Remind the children to call out "Bingo" when they have completed their food item.
- As the children play, encourage them to describe the brick that is chosen.
- Repeat the game as many times as desired. Consider having one of the children play the role of the teacher, choosing the bricks from the bag/container.

# **Contemplate**

- · Facilitate a discussion about the game.
- · Consider asking questions like:
  - How many bricks make up your food item?
  - How did you know if a brick belonged to your food item?
  - What is difficult about playing a game with others? What is fun?

#### Continue

- Tell the children that playing bingo is a bit like solving a puzzle and that they are
  going to make their own puzzles. Explain that a puzzle is a game a person can play
  on their own or with others.
- · Ask each child to build their very own, original food creation.
- Take photos of the models, then print them to make puzzle cards. Alternatively, the children may draw their puzzle cards.
- · Ask the children to solve each other's puzzles, or even work together on one.

# Did you notice?

Observing the following skills can help you monitor whether the children are developing the necessary competencies in math.

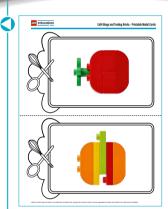
- · Using mathematical terms, such as positional language and color and shape names
- · Categorizing by one or more attributes, and comparing two or more objects
- Sequencing numbers or events

# Learning Outcomes

Children will:

- Match shapes by one-to-one correspondence
- Explore 2D and 3D objects
- · Follow the sequence of events while playing a game

Vocabulary game, bingo, Café, food, taking turns



Printable model cards (see "Café Bingo and Trading Bricks" in appendix)



# **Let's Go Shopping**

For up to 5 children

## **Materials needed:**

Café+ set (45004), printable shopping lists (see appendix; one per child), printable price tags (see appendix), printable play money (see appendix), scissors, pencils

# Connect

- Ask the children to think about the last time they went shopping.
- · Consider asking questions like:
  - What kind of a store did you go to?
  - Why did you go to the store?
  - What did you buy?
- Ask them to help you make a list of items that can be found in a grocery store.
   Write the list or draw pictures as the children call out items.

#### Construct

- Tell the children that they are going to create their own grocery store.
- Show them the printable shopping lists and ask each child to pick a list (or to create their own) and build the items shown.
  - If someone finishes before the others, askher or him to build another item; the more items, the better!
- Once each child has built at least one item, encourage them to arrange the items in a pretend store and give each item a price using the printable price tags.
- Ask them to trade shopping lists and then pretend to shop for all the items on their new list.

## Contemplate

- Encourage a discussion about the importance of lists by asking, "why do people make lists?"
- Talk about price and money. Explain that when we go to the store, we need to pay
  for each item we take. Tell the children that cashiers add up all the prices and tell
  the shopper how much to pay.

# Learning Outcomes Children will:

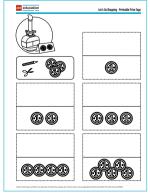
- Build a variety of items
- · Sort by multiple characteristics
- Explore price and money

Vocabulary argery, shop, food

grocery, shop, food, list, price, money



Printable shopping lists (see appendix)

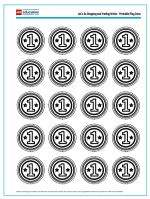


Printable price tags (see appendix)

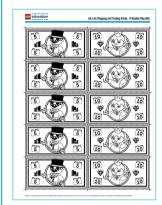
- Using the printable money, continue to role-play a shopping trip. Model how to be a cashier by asking one of the children to be the shopper, then asking him or her to pay for each item one at a time. Choose a child to act as the cashier.
- If they are ready, encourage the children to add the prices of two items together when they are the cashier.

# Did you notice?

- Counting using number names, and beginning to recognize the number of objects in a set
- · Exploring simple operations, such as adding
- · Recording simple data in a chart or graph



Printable play coins (see appendix)



Printable play bills (see appendix)





# **Trading Bricks**

# For up to 4 children

## **Materials needed:**

Café+ set (45004), printable model cards (see "Café Bingo and Trading Bricks" in the appendix; one per child), printable money (see "Let's Go Shopping and Trading Bricks" in the appendix), scissors, an opaque bag or container that can hold 20 LEGO® DUPLO® bricks

#### Connect

- · Ask the children to recall when they used the coin bricks or play money to buy food items.
- · Facilitate a discussion about trade. Explain that when a person pays with money, they are trading that money for the item.
- · Ask: How did people get the items they needed before money was invented?
- · Wait for answers, then explain that people can trade one item for another and that people did this a lot before coins and paper money were invented.
- Have the children take turns role-playing how to barter using various items in the classroom.

### Construct

- · Preparation: Before this activity, collect all the bricks used in the four printable model cards and place them in an opaque bag or container.
- · Tell the children that they are going to play a game in which they will need to make trades in order to build a food item.
- · Hand out one printable model card, five randomly selected bricks, and two coin bricks to each child.
- · Ask the children to see whether any of their bricks are the ones needed to build the food item shown on their individual cards, and to identify which bricks they are missing.
- · Ask them to walk around to the other children, find who has the bricks they need, and trade for them.
- · Explain that sometimes they might not have a brick to trade with the child who has the brick they need, but they can trade a coin brick for it.
- · Help the children make their trades until each child has the correct bricks, then encourage them to build their models.

## Contemplate

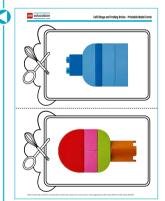
- · Facilitate a discussion about the game.
- · Consider asking questions like:
  - How did you find the bricks you needed?
  - Did you help others get the bricks they needed?
  - Is it easier to trade bricks or trade money for bricks?
- · Talk to the children about fair trades. Explain that both people making a trade should feel that they are getting value (i.e., what they need).

# Learning Outcomes

- of objects in a set
- Follow the sequence of events while playing a game

Vocabulary

trade, fair, money, coins,

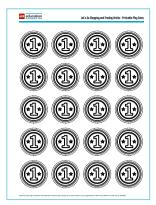


Printable model cards (see "Café Bingo and Trading Bricks" in appendix)

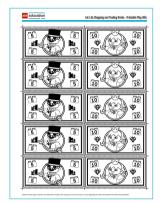
- Explain that people also get paid for performing services like cleaning the house, mowing the lawn, or washing the windows.
- Ask the children to help you create a classroom chores chart and decide how much each chore is worth. Use the printable money to pay the children when they complete the chores.
- Set up the café again and encourage children to use their hard earned money to buy food from the café. Have some of the children play the role of the cooks and build the food items.

# Did you notice?

- Counting using number names, and beginning to recognize the number of objects in a set
- · Sequencing numbers or events
- · Recording simple data in a chart or graph

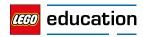


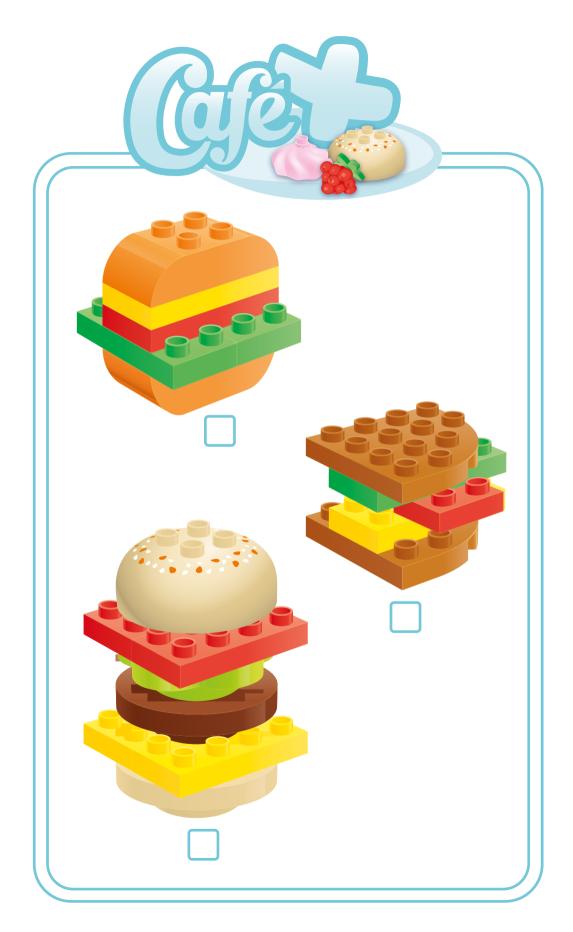
Printable play coins (see appendix)

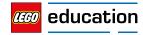


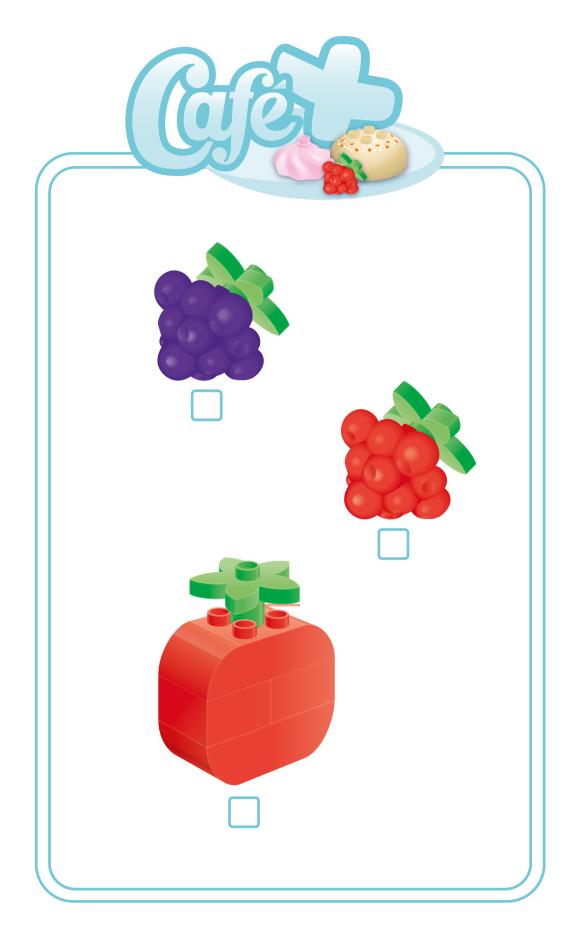
Printable play bills (see appendix)



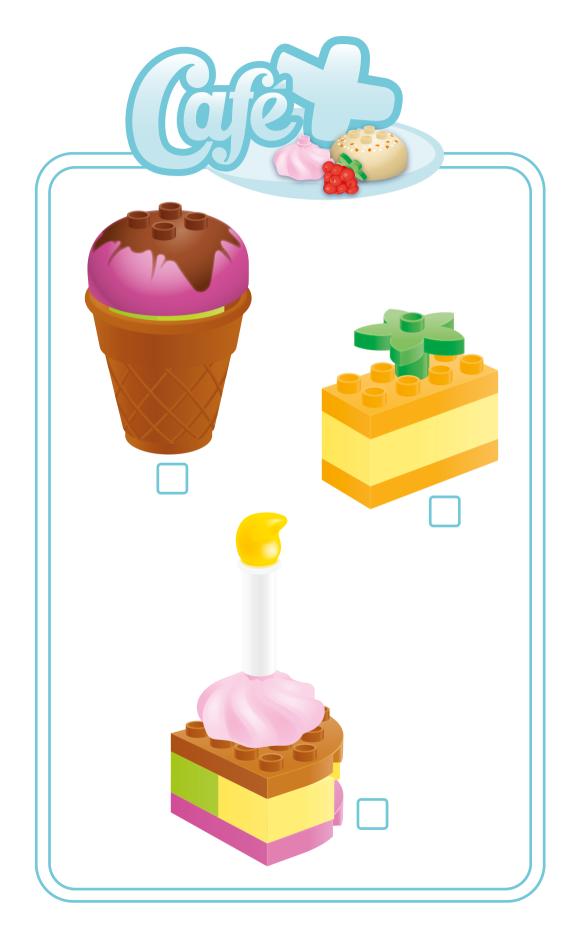


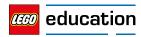




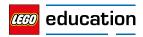










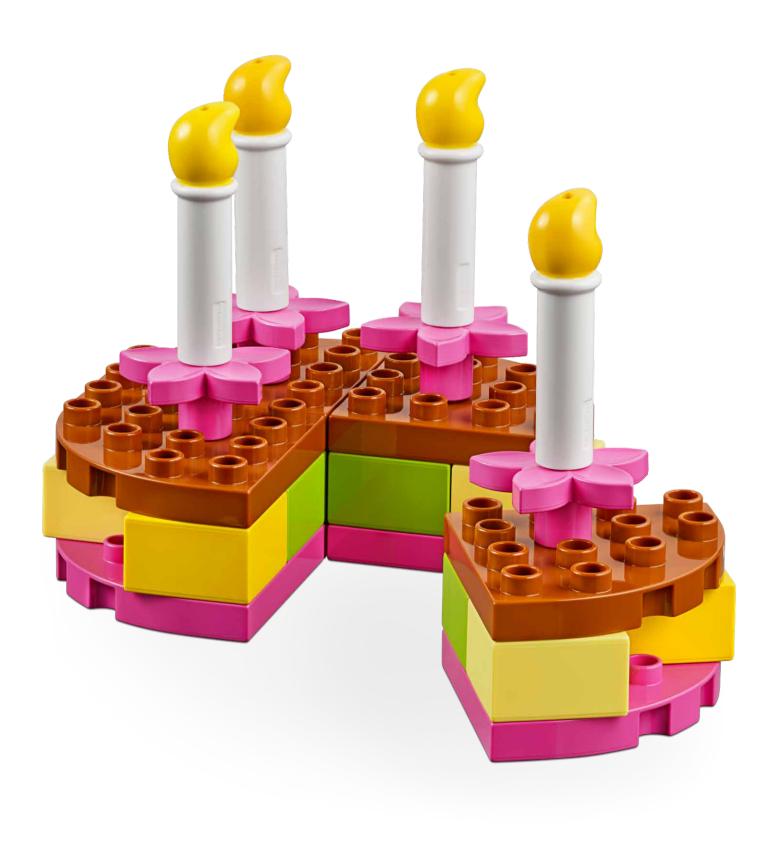




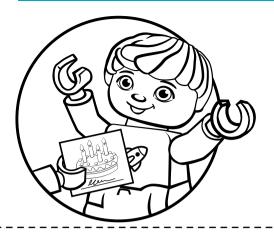














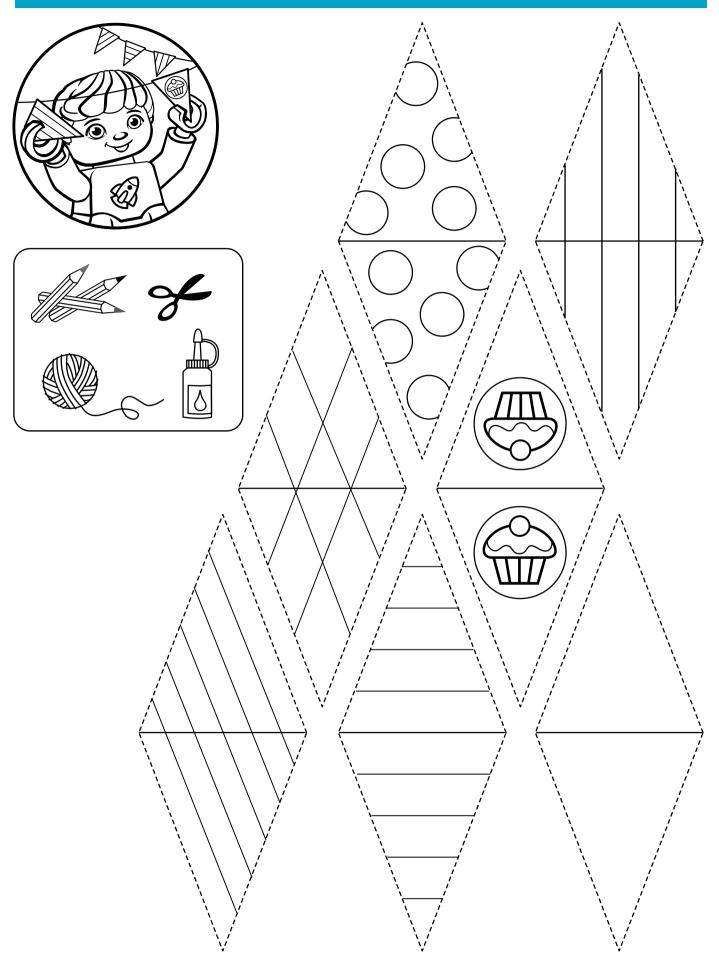




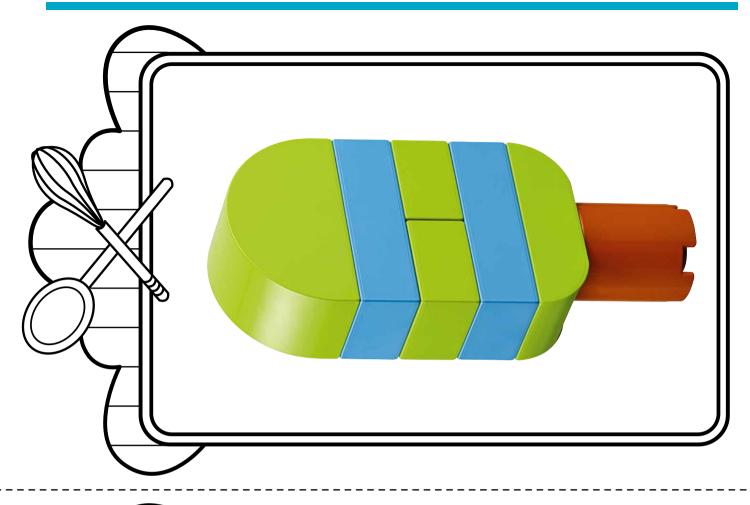


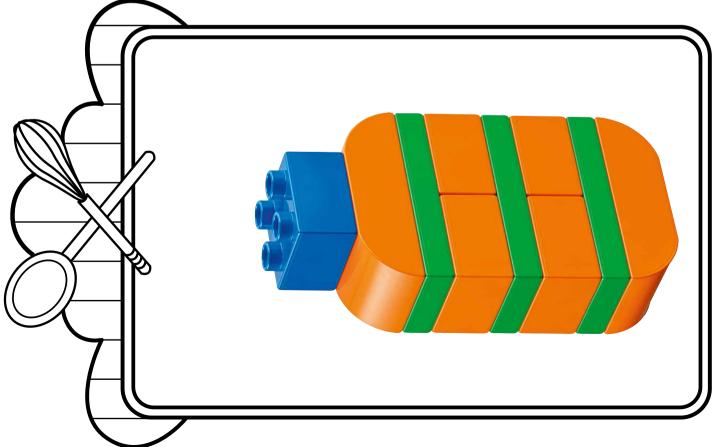




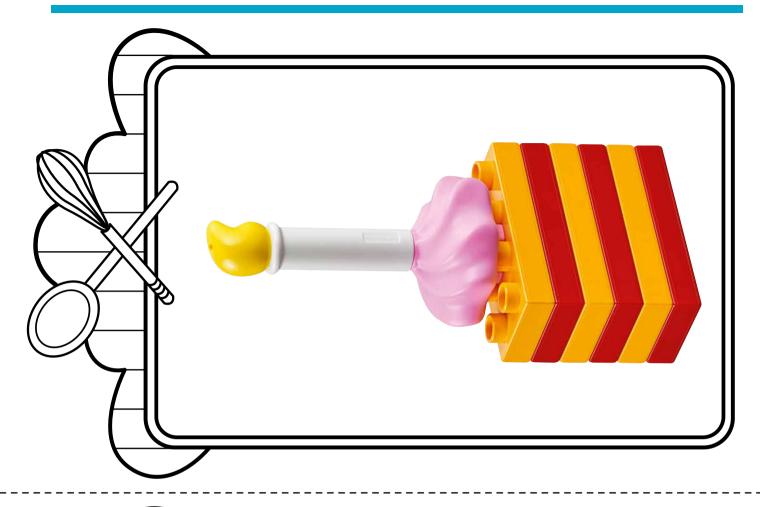


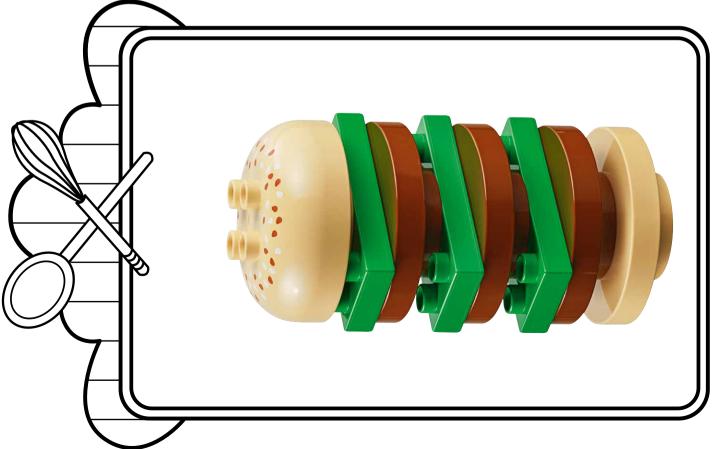




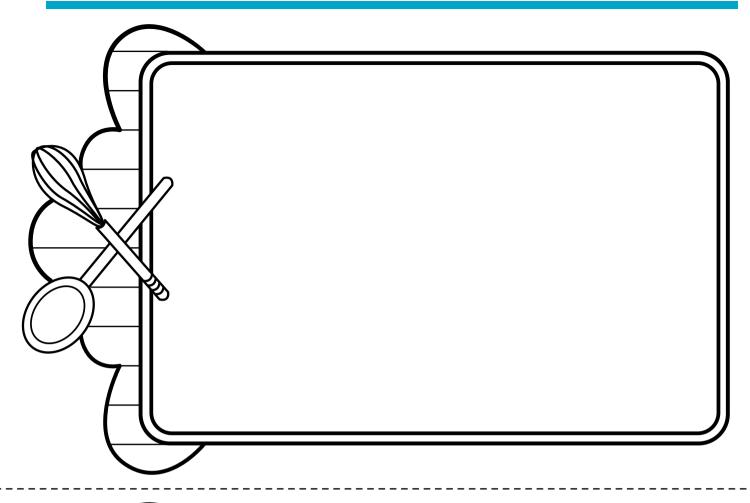


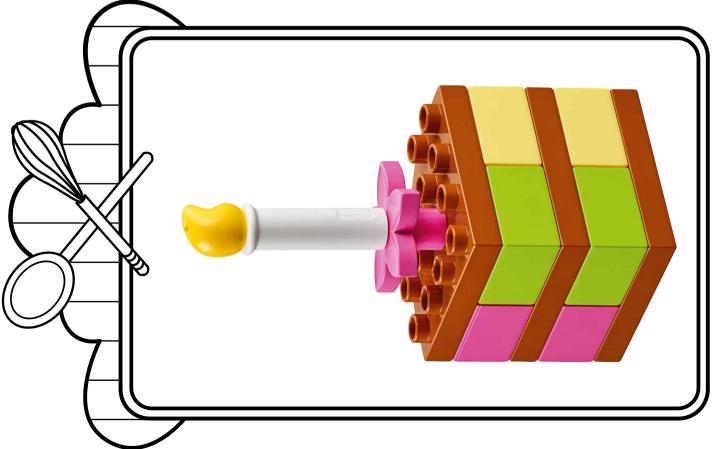


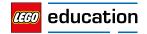


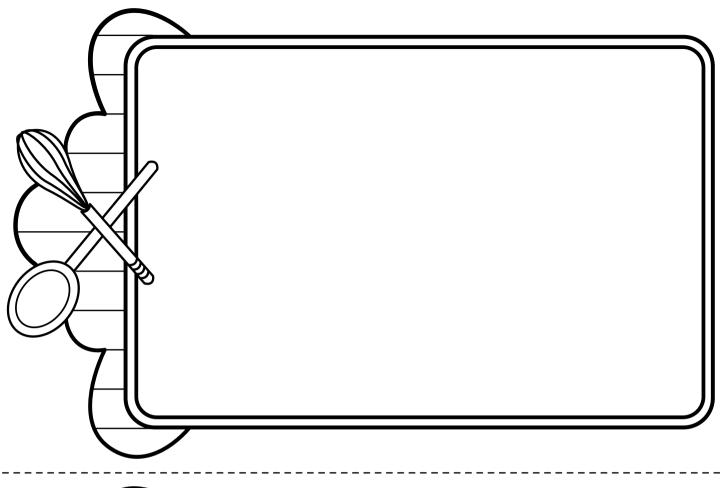


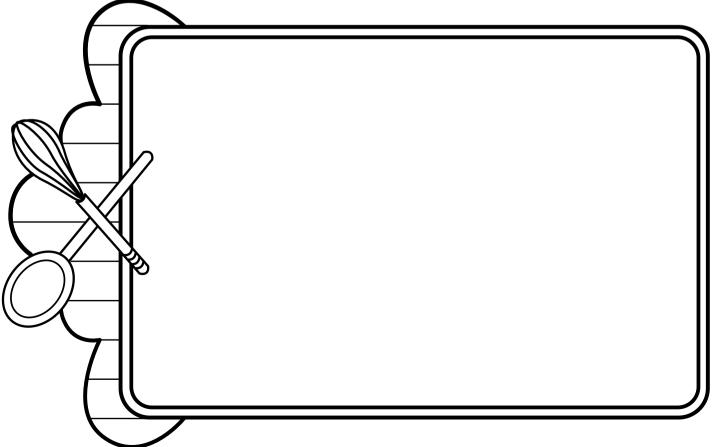






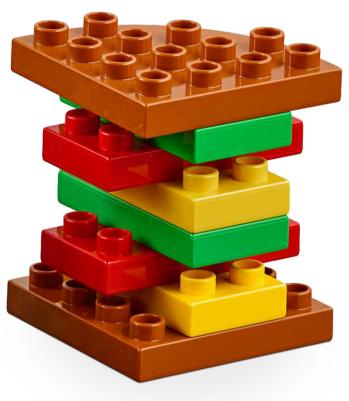


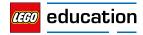


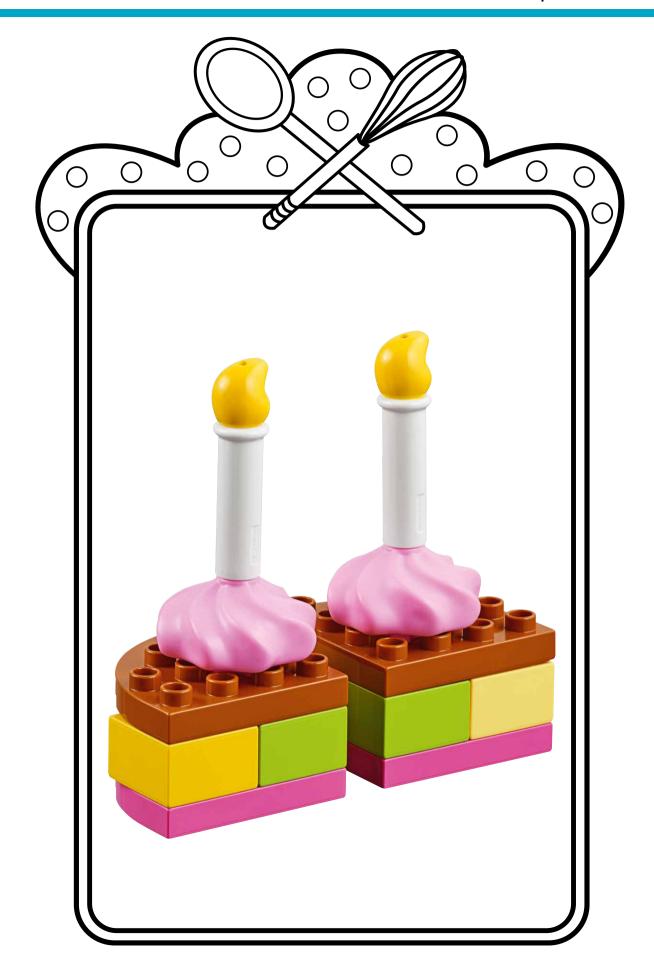


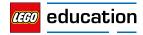


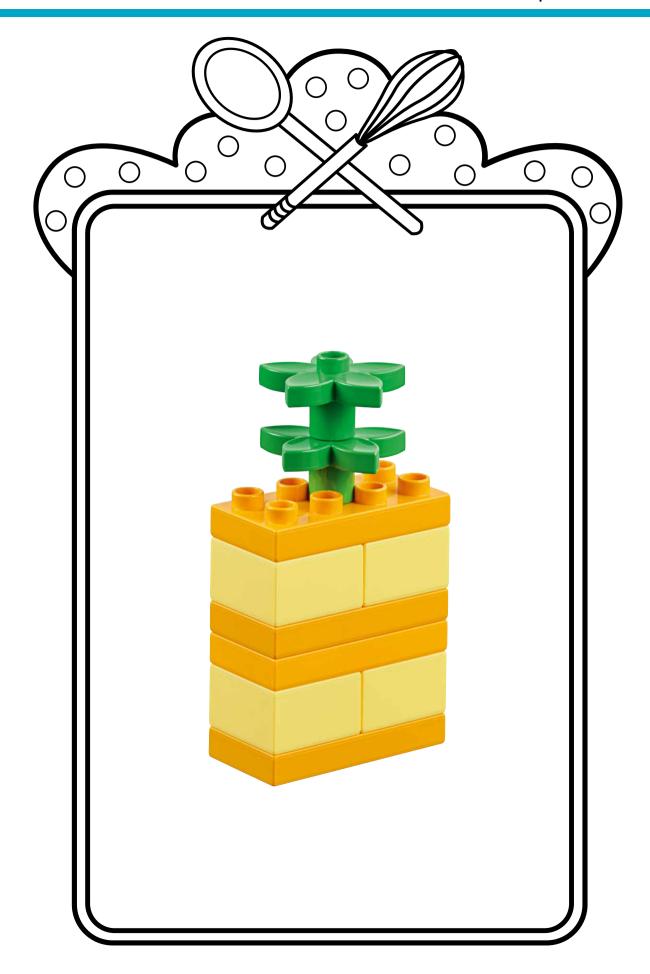


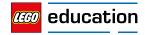


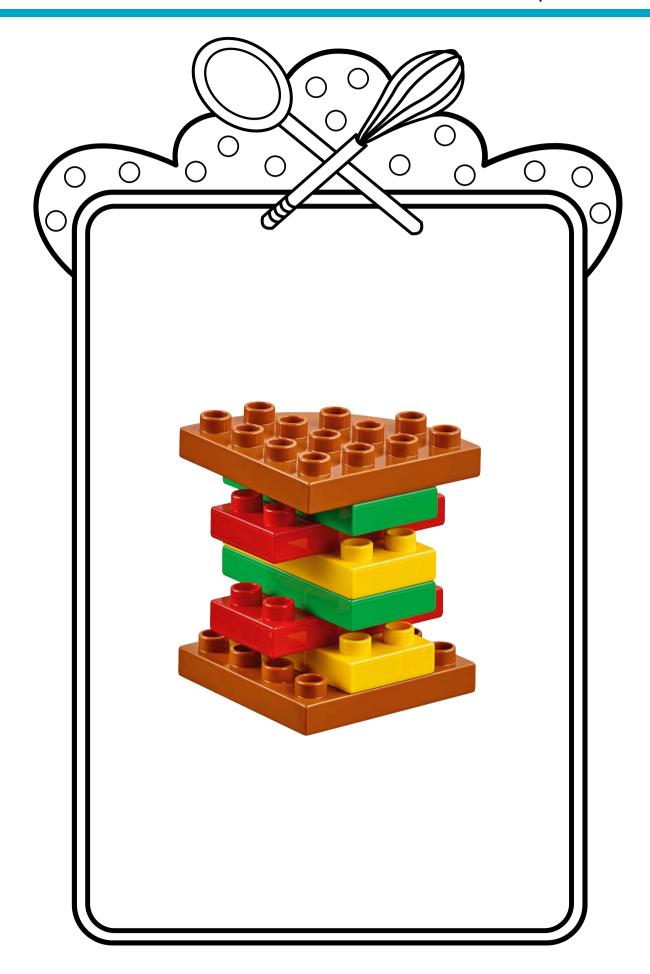


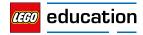


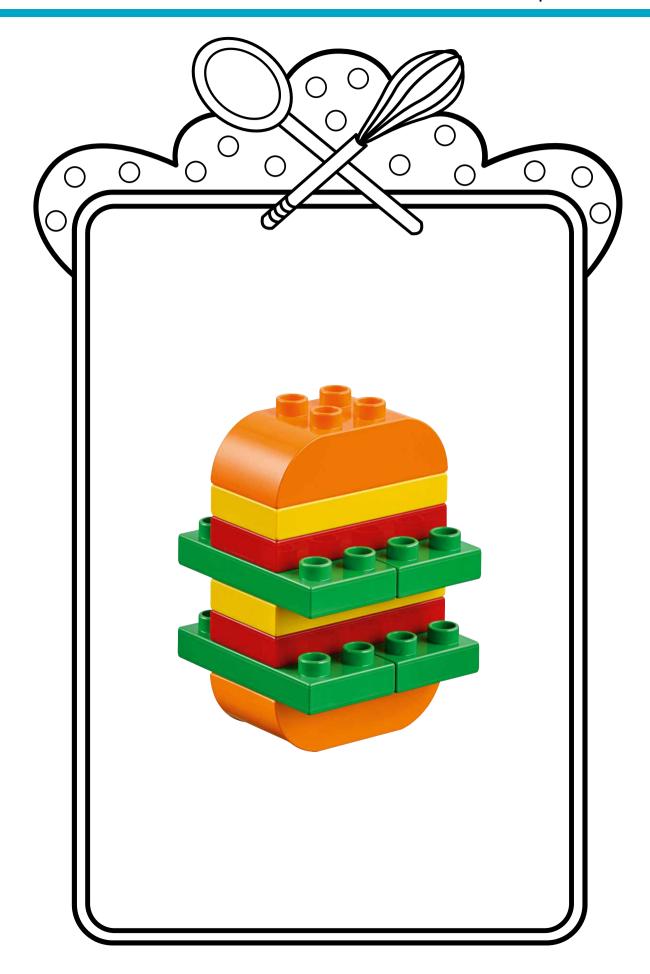


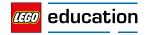


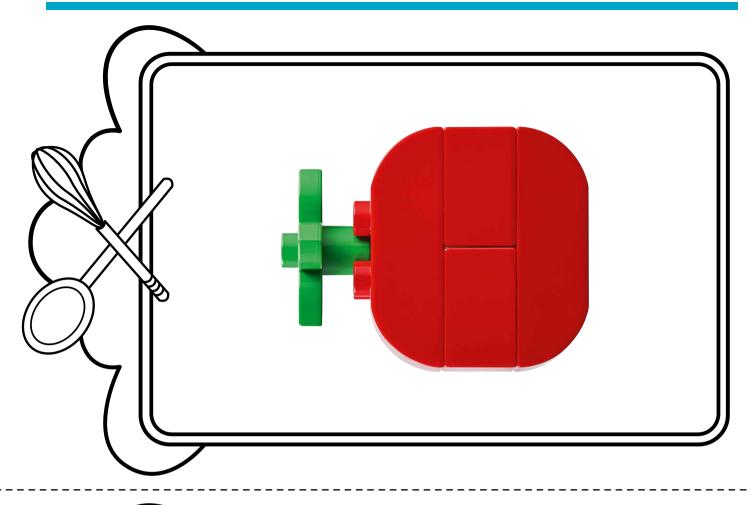


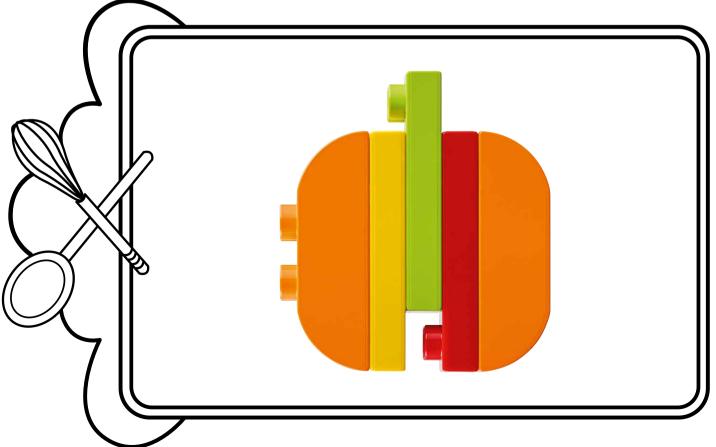


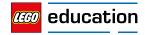


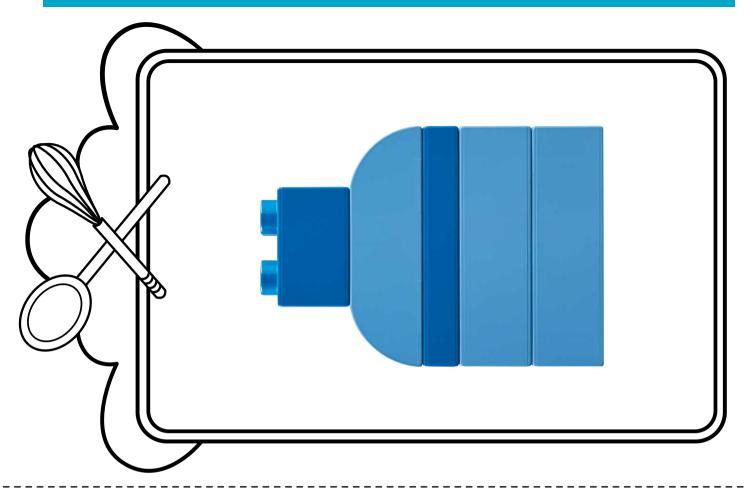


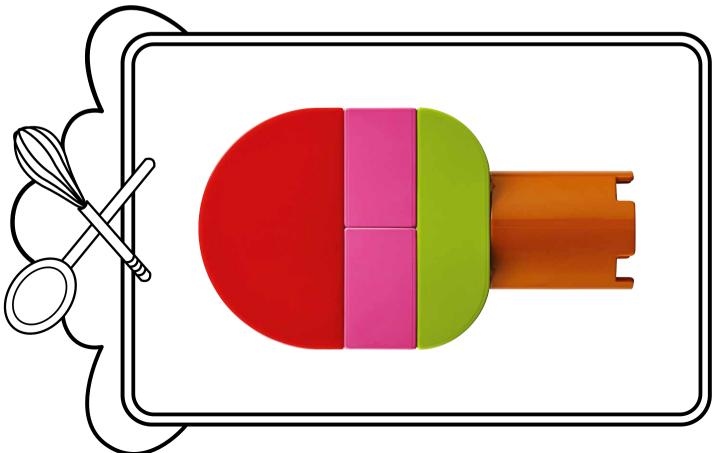


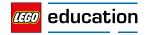


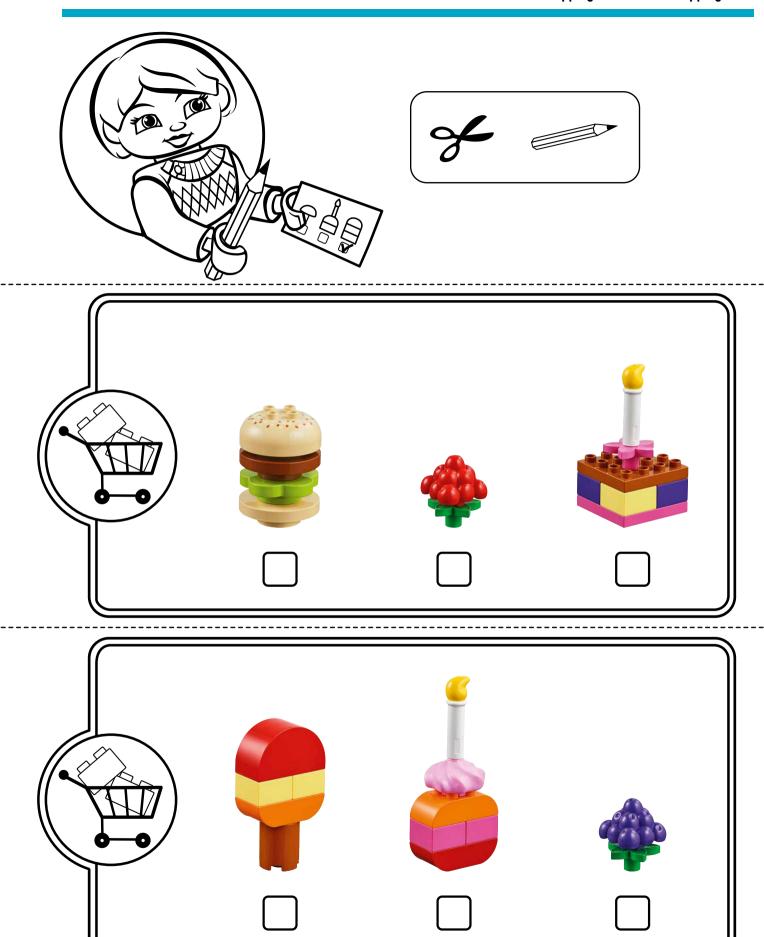


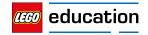


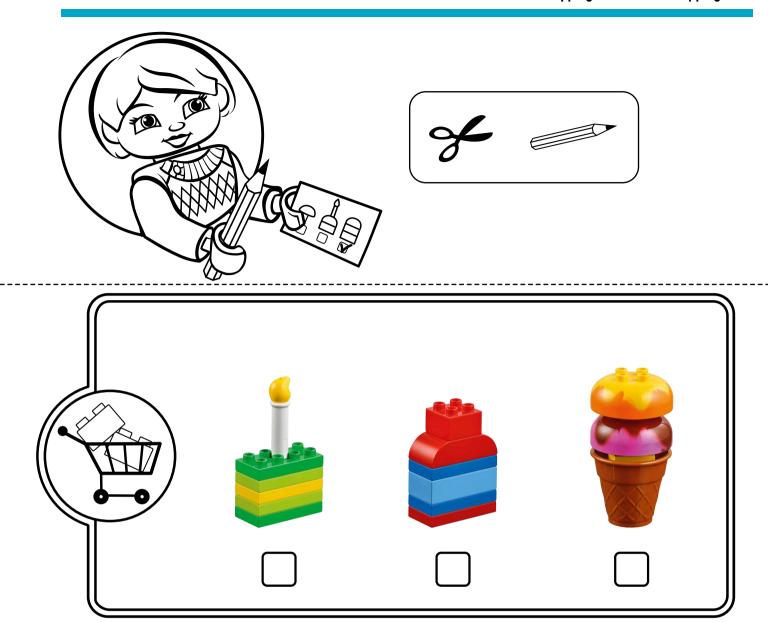


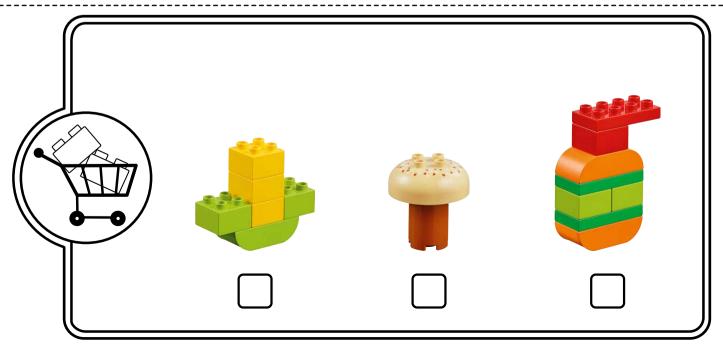


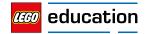


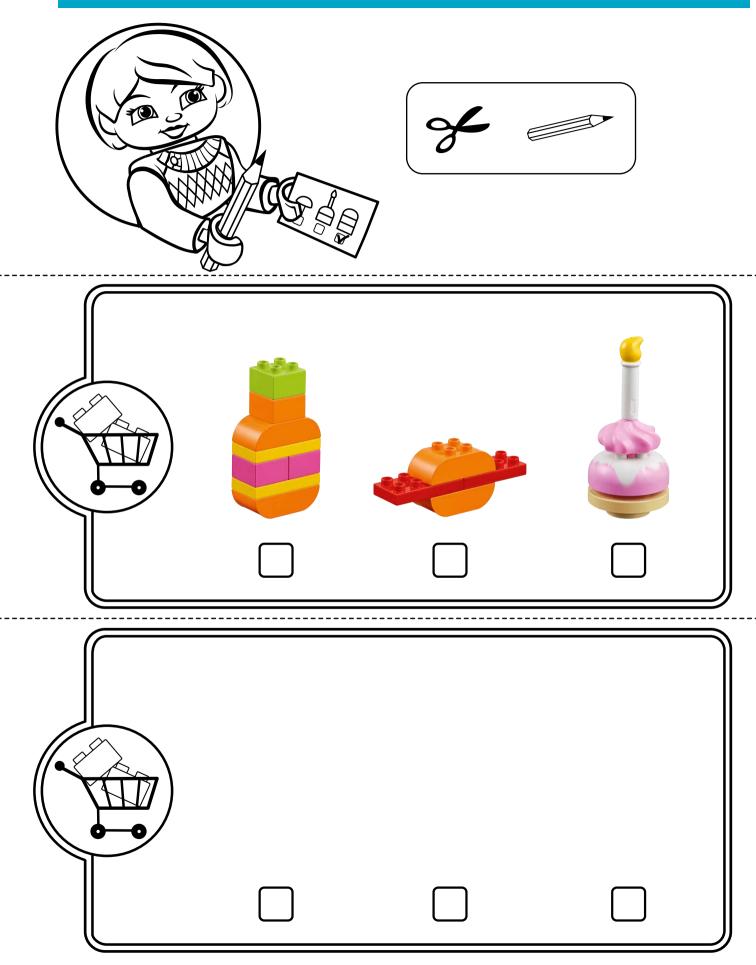




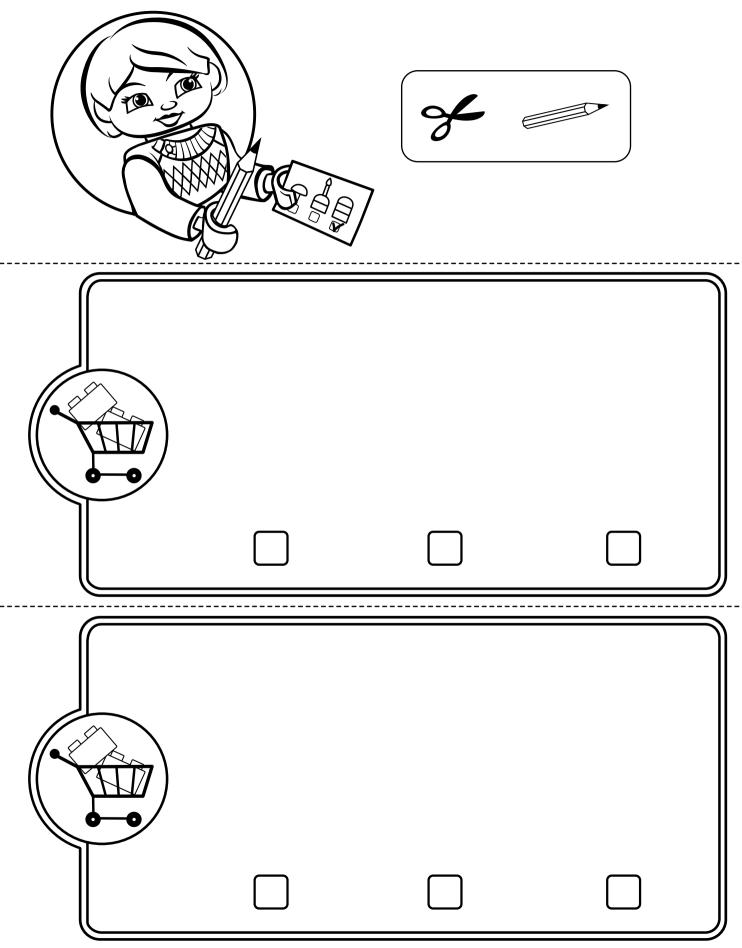




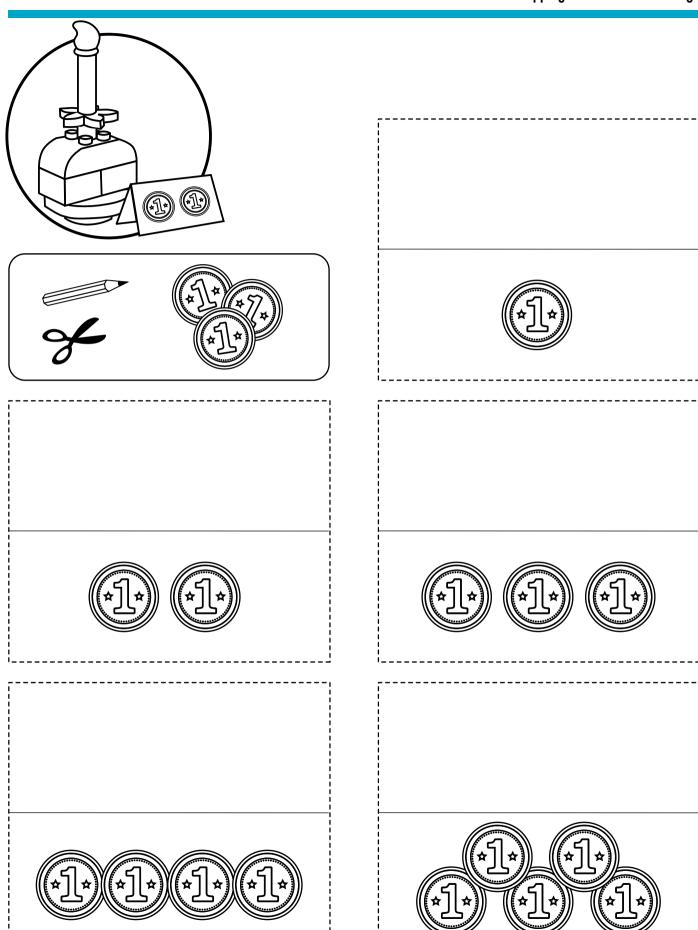


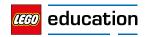


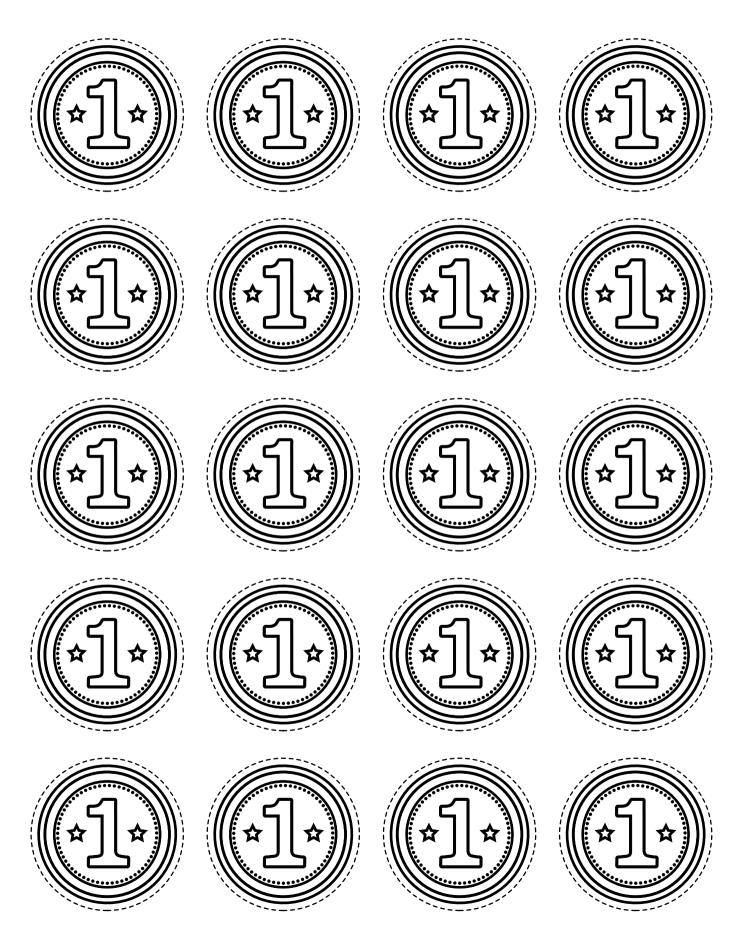




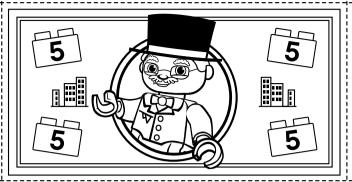




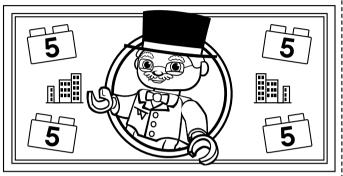




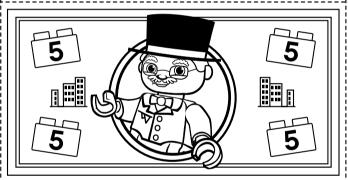


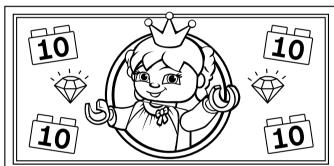


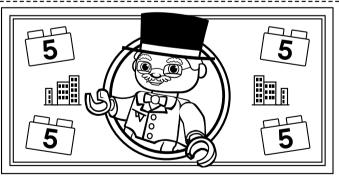
















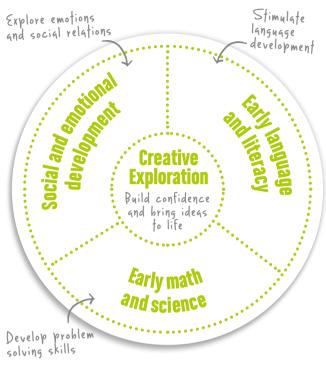


Help your preschoolers develop important skils

Explore emotions and social relations







LEGO® Education Preschool solutions stimulate children's natural curiosity to explore together and learn through play. Our preschool solutions will support you in developing your preschoolers in the Following ways:

- give them social skills to collaborate and communicate with the world around them
- let them discover their own capabilities and acquire **Fundamental life skills**
- develop crucial skills for school readiness focusing on four key learning areas essential for early childhood development: Creative Exploration, Social and Emotional Development, Early Math and Science, and Early Language and Literacy

Find out more...

**LEGOeducation.com** 



