intelino® edu

intelino coding challenges

About This Challenge

The Heart Challenge is a coding activity that uses the programmable custom snap commands. Students have to make sure that the intelino train delivers the same number of hearts to everyone. We don't want to leave anyone out for Valentine's day!

The activity is self-guided and works best in small groups. There are two difficulty levels to choose from (pick one of the two first pages - the rest of the pages work for both difficulty levels)

After assembling the track, preparing the cargo basket and hearts, kids first explore how intelino delivers the hearts without a programmed route. They will recognize that the train may not give everyone the same number of hearts and this is because the train chooses a random direction at every split track. If you like, this is a good point to look at the concept of randomness some more!

The next step is to program the train such that it distributes the hearts equally among the stations and kids will be doing this using the editor in the intelino Play App. In the editor, they can program a sequence of directional commands that they can load onto the train to execute. Knowledge of the custom command editor is recommended if the kids are doing the activity self-guided.

For more info and help on how to use the intelino Play App, please see these support pages!

Grades

- K-8
- 2 difficulty levels

Code Modes

- mode 2 (custom commands)

Time

- one session
- about 45 min

Group

up to 4 students per group

Prerequisites

experience with custom commands in the intelino Play App editor is recommended

Supplies

per group:

- 1 intelino starter set or classroom set track box
- charged engine
- device running intelino Play App
- printout of pages 1-3 (choose the difficulty)
- printout of hearts page
- printout of cargo basket page (choose from 2 versions)
- scissors
- glue stick
- (double-sided) tape

Standards

- CSTA: 1A-AP-10, 1A-AP-11, 1A-AP-14, 1B-AP-10, 1B-AP-11, 1B-AP-13, 1B-AP-15, 1B-AP-16
- Common Core: CCSS.MATH.CONTENT.1.MD.C.4, CCSS.MATH.CONTENT.6.SP.B.5
- ISTE: 1.1.a, 1.1.d, 1.5.a, 1.5.c, 1.6.b, 1.7.b, 1.7.c

Questions? email julia@intelino.com

Heart Challenge

Difficulty: ●○○

Code Modes:
mode 2 - custom commands

about 45 min

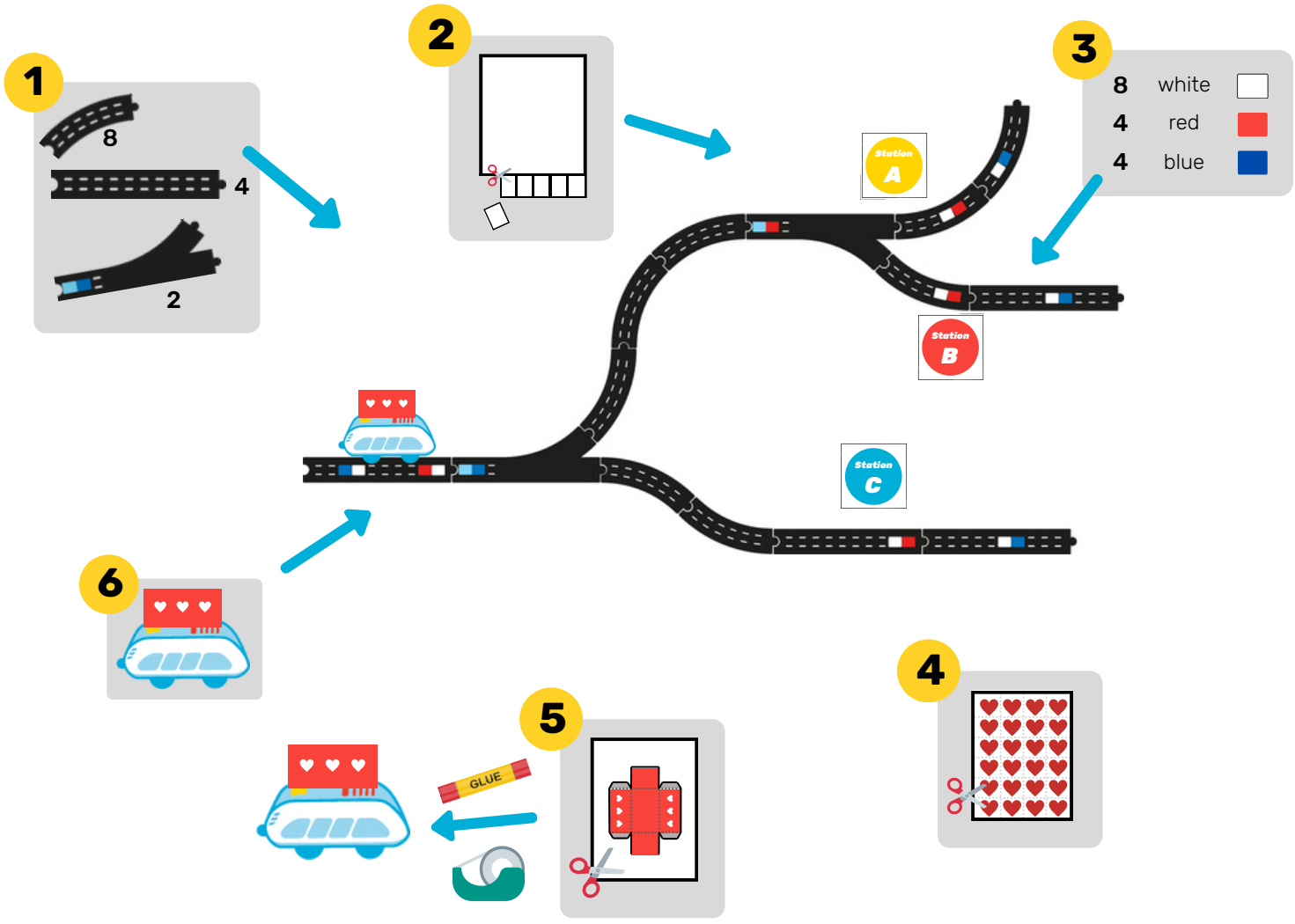
intelino

NAME

Hi, it's me - Jamy!

We want to deliver hearts for Valentine's Day.
Can you help me make sure that everyone gets a heart?

Choose your difficulty
1 - this page
2 - next page



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Station A

Station B

Station C

Heart Challenge

Difficulty: ●●○

Code Modes:
mode 2 - custom commands

about 45 min

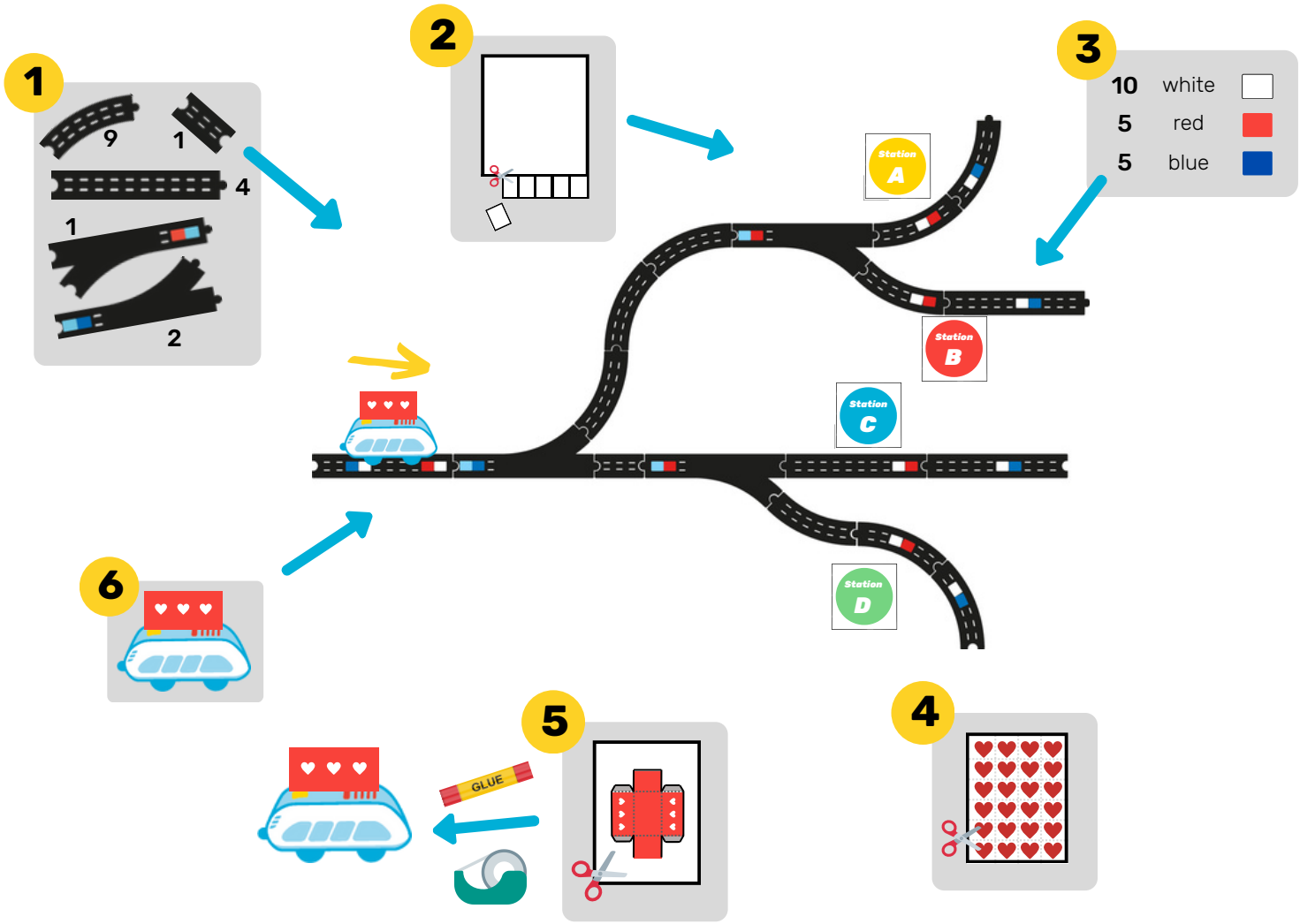
intelino

NAME

Hi, it's me - Jamy!

We want to deliver hearts for Valentine's Day.
Can you help me make sure that everyone gets a heart?

Choose your difficulty
1 - previous page
2 - this page



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Station A

Station B

Station C

Station D

I wonder if everyone will get the same number of hearts.
Let's find out!

Follow these Steps:

1. **Fill the basket** with some of the hearts. One of you needs to make sure that the basket is filled with hearts when it's back at the start - until you run out of hearts.
2. **Start** the engine!
3. When the train stops at one of the stations, **take one heart** from the basket and place it on the circle.
4. **Stop** the train when the hearts run out!
5. **Record** how many hearts arrived at each station in the table below. Use tally marks or numbers.
6. Did every station get the same number of hearts? Is the result what you expected? **Discuss**!

Station	Number of Hearts
A	
B	
C	
D	

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Let's make sure that everyone gets the same number of hearts!
We can use custom commands to program me.

Custom Command Steps

1. Open the **intelino Play app.**
2. Make sure that your train engine is turned on, then **connect** the app to the train.
3. Go to the **editor**.
4. Tap on the **splits custom command** (the one on the right).
5. Add **magenta (pink) snaps** to all split tracks.
6. Think about how you want the train to go. You can use the table below to write down the steering direction at each split. Then, **program the custom steering order.**
7. **Upload** the custom commands.
8. Load the basket with hearts, place the engine at the start point and **start** the engine - this activates the custom commands.
9. Did every station get the same number of hearts this time? If not, go back to the custom steering commands, modify your commands, upload, and **try again!**

Split	Direction
1	
2	
3	
4	
5	
6	
7	
8	

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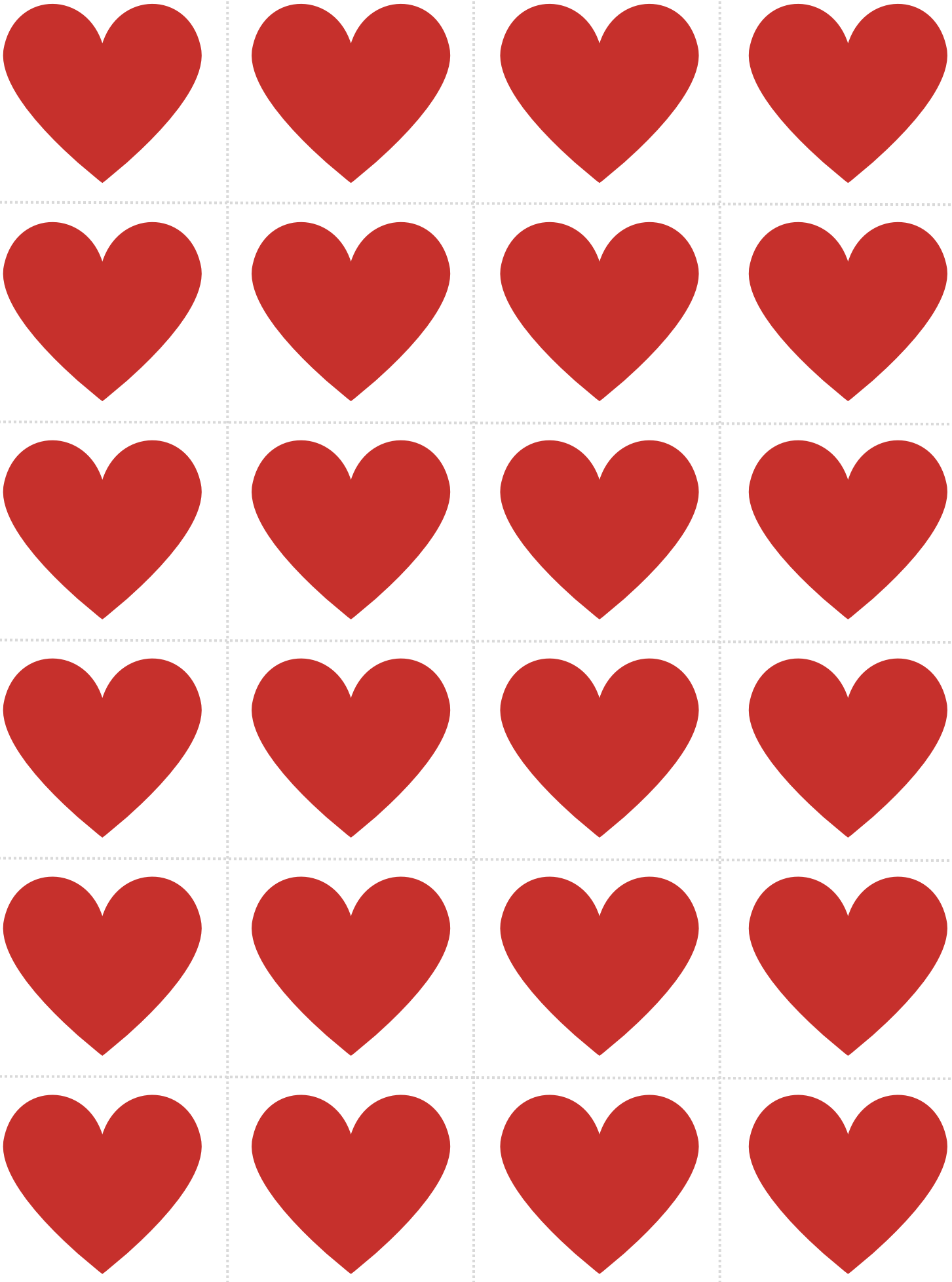
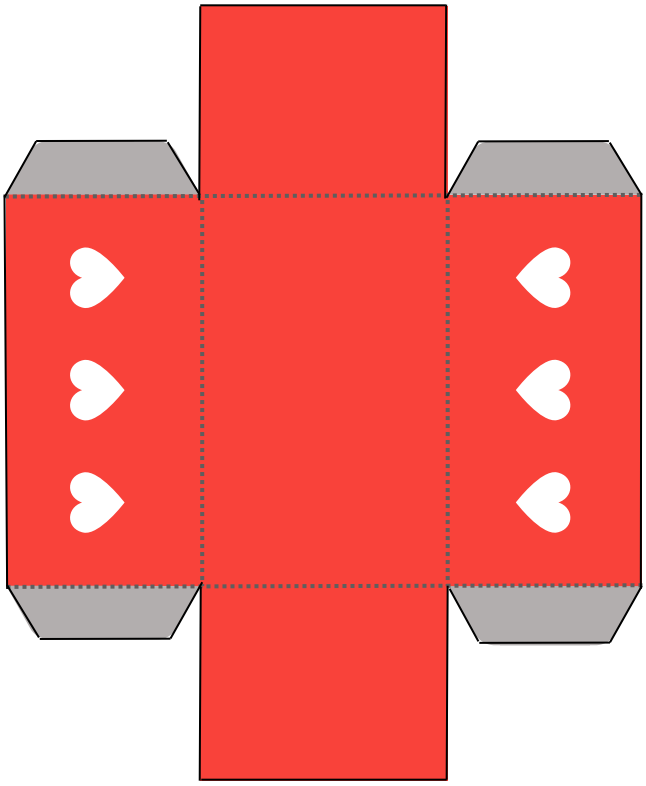


Cargo Basket

Print on cardstock!

- Cut along black lines
- Fold along dotted lines
- Glue the grey flaps to the inside of the side rectangle to make a basket
- Attach basket to top of engine with a bit of double-sided tape



Print on cardstock!

Cargo Basket

Design your own!

- Cut along black lines
- Decorate or color the basket
- Fold along dotted lines
- Glue the grey flaps to the inside of the side rectangle to make a basket
- Attach basket to top of engine with a bit of double-sided tape