



MAKE X

ROBOTICS COMPETITION

MakeX Inspire Activity Operation Training Manual

MakeX Robotics Competition Committee

MakeX Inspire -Fruit Wonderland Activity Operation Training

Please bring a stopwatch and computer. (And remember to download the latest firmware to upgrade package in advance)

Part 1 **Arena Personnel and
Materials Operation**

Part 2 **Mission Introduction**

Part 3 **Activity Process**

Part 4 **Scoring and Penalty**

Part 5 **Scoresheet**

Part 1

Arena Personnel and Materials Operation

Arena Personnel

- A Kid
- An Adult
- A staff
- A Volunteer

Materials Operation

- MakeX Inspire Fruit Wonderland Arena Kit*1
- A Hard Floor Mat (3m*3m), About 8 Black Floor Mats
- Mission Card (Pest/Fruit Tree)
- A Stopwatch
- A Clipboard
- A Pen
- Scoresheet

A staff

1. Activate missions;
2. Assist the kids to select a mission card;
3. Assist the kids to place the props and reset the arena;
4. Record mission score;
5. Have the highest power to execute the penalty in the activity.

A Kid



An Adult

Guide and supervise the kid to play safely.

A Volunteer

Assist the staff to place the arena props and reset the arena, reminding the kid of time.



Name	Picture	Quantity
Pest Card		5
Model Fruit Trees		4
Fruit Props		12 (4 of them are spare)
Fruit Basket		1
Fruit Storage box		2

Coding Card		36
Calculation Card		2
Acquisition Card		5
Coding Card Slot		4
Direction Control Panel		1

Floor Mat (3m*3m) , About 8 Black Floor Mats

Stopwatch



Clipboard*1
 Scoresheet*1
 Pen*1

Collection Area
 Fruit Sticker

Mission Cards
 (Pests/Fruit Trees)



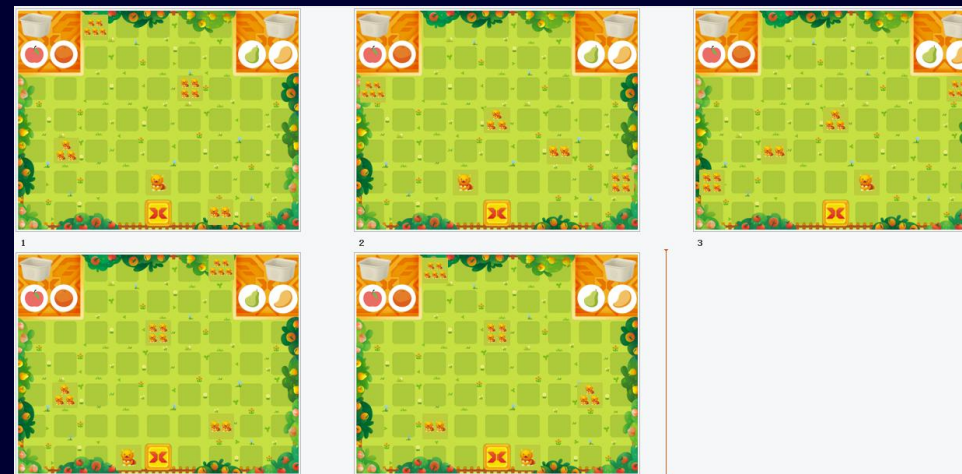
Stopwatch

For mission timing, the staff needs to remind the kid when there is only **1 minute**, **30 seconds**, **5 seconds** left.

Pest Capture Mission: 4 minutes

Fruit Transport Mission: 3 minutes

Draw mission cards
One of Five



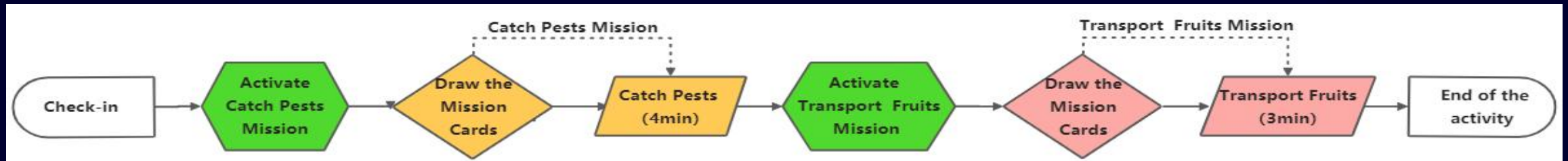
Draw Mission Cards (Pest)



Draw Mission Cards (Fruit Tree)

Mission cards are usually printed by the organizer. The MakeX Competition Committee will provide the image of the mission cards in advance.

Part 2 Mission Introduction



Check-in: Complete the on-site registration and confirm the kid's information.

Activate a mission: Activated mission by clicking the corresponding activation card.

Draw the mission cards: After the mission is activated, the staff will invite the kid to draw a mission card and assist the kid to put the model props (pest card/fruit tree) accordingly and paste the fruit basket for the robot.

Pest Capture Mission: The kid completes the mission according to the rules.

Fruit Transport Mission: The kid completes the mission according to the rules.

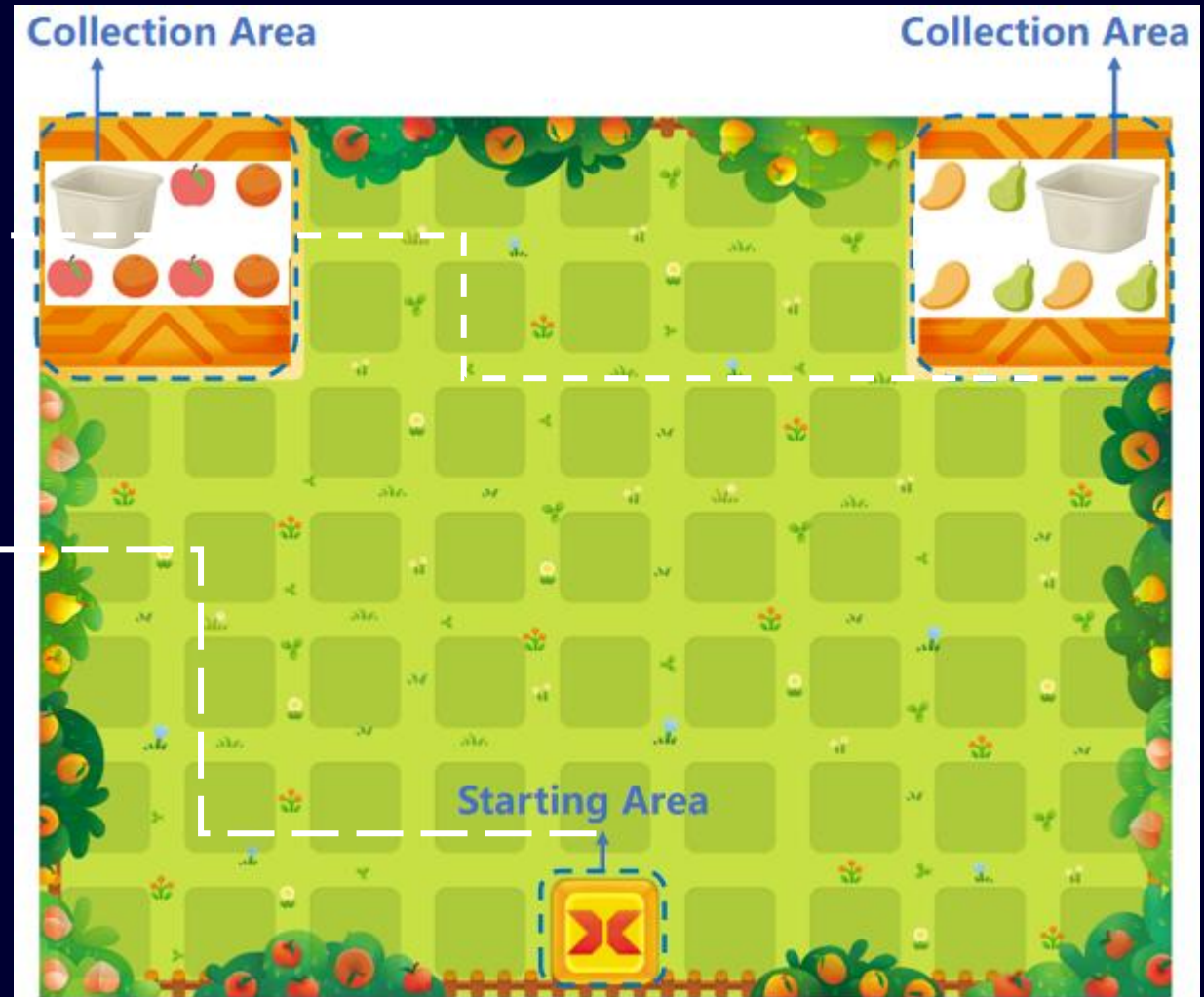
End of the activity:

- a) End of routine
- b) End early
- c) Automatic termination

There are two fruit collection areas, respectively located in the upper left and right corners of the map.

The whole activity arena has only one starting area and its edge length is 105mm * 105mm.

There is only one operation area, laid with the floor mat. Kids are only allowed to program the robot in a specific area by using the tap-pen controller and a coding card.



Operation Area

Mission Type:

1. Pest Capture Mission-4 minutes
2. Fruit Transport Mission-3 minutes

- ❑ On-site registration
- ❑ The total time is 15 minutes.

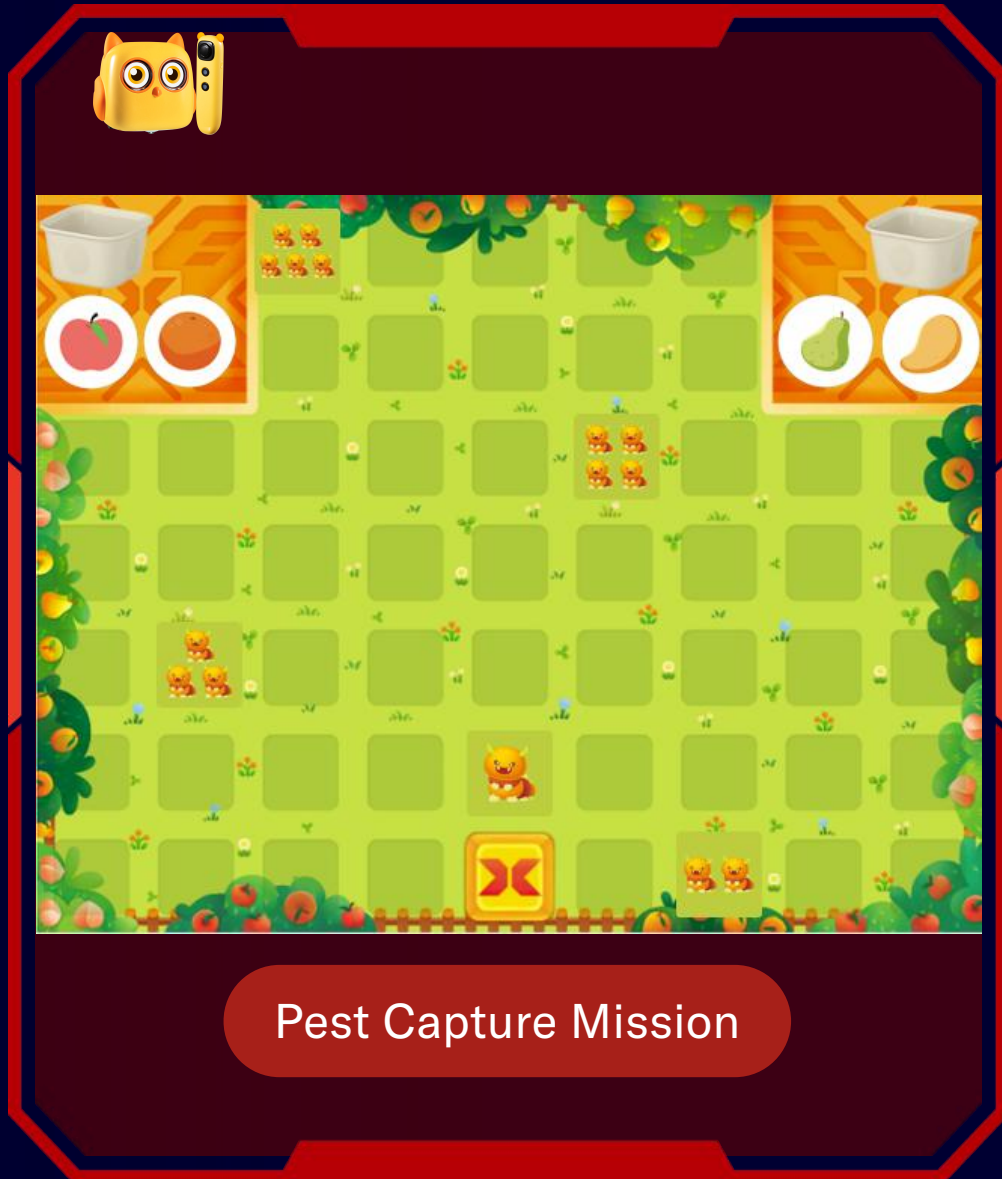


Pest Capture Mission

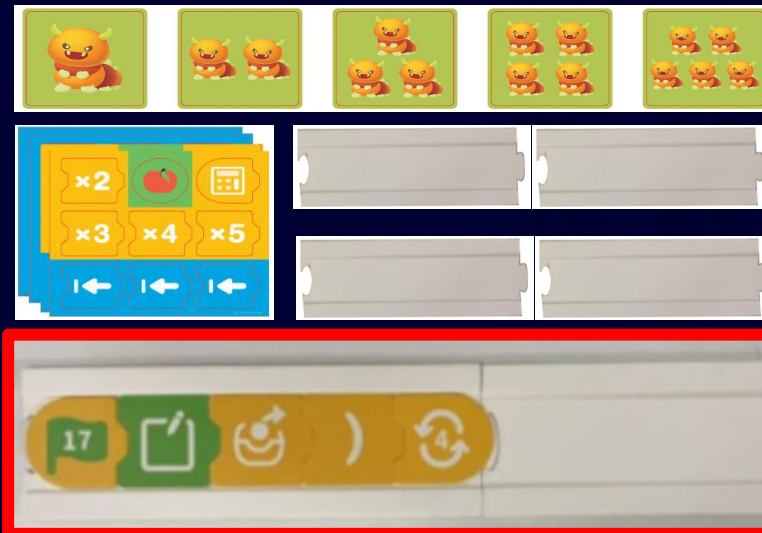


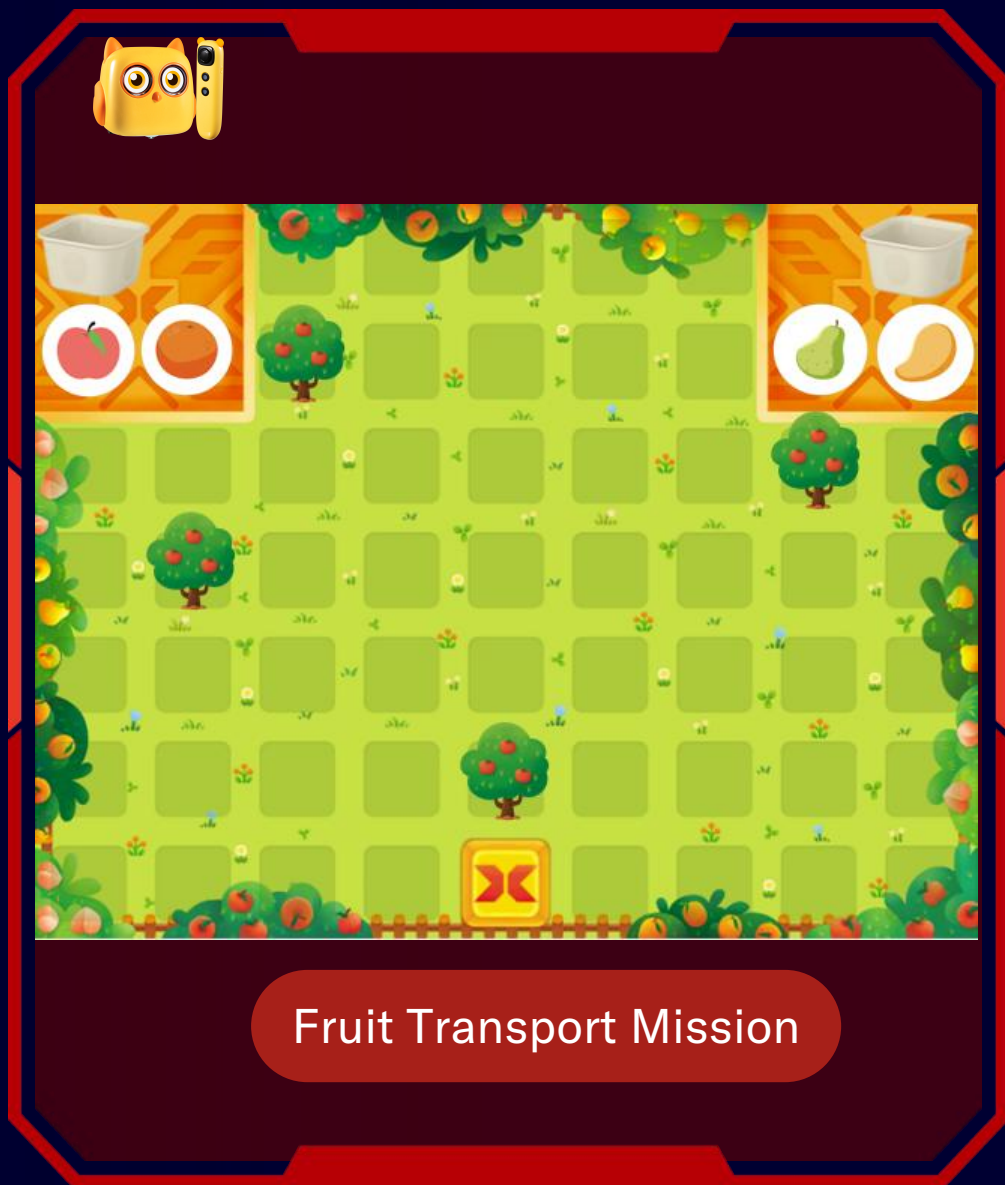
Fruit Transport Mission

Mission Introduction-Pest Capture

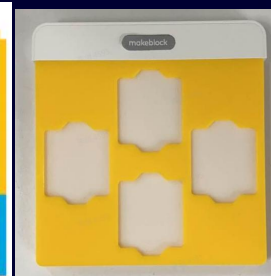
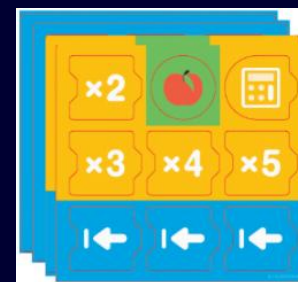


1. The kid gets ready, the staff activates the pest capture mission.
2. The kid draws a card and confirms the best route to get a score.
3. The kid put the pest cards on the map according to the mission cards.
4. The kid arranges the order of programming instruction cards.
5. The kid clicks the route capture programming instruction cards.
6. The robot runs the program instruction automatically to capture the pest.





1. The kid takes a position in the operation area, the staff activates the mission.
2. The kids draw the mission cards confirm the place of fruit trees and plan a reasonable route.
3. Place the fruit tree on the map according to the mission cards.
4. The kid paste the fruit box on the robot and check the direction control panel.
5. The kid controls the robot to deliver the fruit to the collection area.



Part 3 Activity Process

Activity Process



Preparation

2 minutes



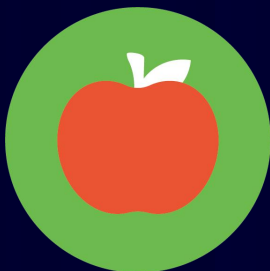
Pest Capture Mission

4 minutes



Scoring Time

1 minute



Preparation

2 minutes



Fruit Transport Mission

3 minutes



Scoring Time

1 minute

MAKE X Activity Process-Pest Capture Mission



Draft



Preparation

2 minutes

1. Please take your mark on the operation area and place your robot on the starting area.
(Action: The staff point the corresponding area for the kid)
2. Now turn on your robot and the tap-pen controller then hand the tap-pen controller to the staff.
3. Now let's start with the pest capture mission.
(Action: The staff click and activate the pest cards and put the tap-pen controller back to the robot)
4. Please draw a mission card.
(Action: The staff shows 5(pest) mission cards and invite kids to draw one of them)
5. Now please program the route instruction according to the mission card.
(Action: The staff put the mission cards drawn by the kids in the operation area, and place the props according to the mission cards)
6. Please confirm whether the position of the pest cards on the field are correct.
(Motion: After the kid's confirmation, he/she should be ready for the pest capture mission)

Activity Process-Pest Capture Mission



Draft

1. Pest cards position confirmed, let's start the pest capture mission. Now countdown of 4mins.



(Action: The staff raises hands to remind kids to start coding)

During the competition, the staff should check the stopwatch and record the score.....

Pest Capture Mission

4 minutes

2. There is 1 minute left

(Action: The staff reminds the excess time of mission)

3. There are 30 seconds left

(Action: The staff reminds the excess time of mission)

4. There are 5 seconds left, 5,4,3,2,1. Time's up, please put down the tap-pen controller immediately.

(Action: The staff reminds the excess time of mission)



Scoring Time

1 minute

Draft

1. During the pest capture mission, the kid captured X pests totally.

(Action: The staff check scoring and penalty)

2. Now please reset the mission cards, and we will move on to the fruit transport mission.

(Action: The staff calculate the score and assist the kid to sort the mission cards)



Draft

1. (Action: The staff tear the pest card on the map off and reset the arena, and paste the fruit box on the robot)

2. Please reset the robot and hand the tap-pen controller to the staff.

3. Now the fruit transport mission begins.

(Action: The staff click and activate the fruit cards and put the tap-pen controller back to the robot)

4. Please draw a mission card.

(Action: The staff take 5(fruit) mission cards and invite the kids to draw one mission card)

5. The kids shall plan the best route to transport fruit according to the mission cards

(Action: The staff put the mission cards in the operation area, and place the “fruit trees” props according to the mission cards)

6. Please check the position of the fruit trees

(Action: After the kid’s confirmation, he/she should be ready for the fruit transport mission)



Preparation

2 minutes



Draft

1. Props position confirmed, let's start the fruit transport mission and times countdown of 3 mins.

(Action: The staff raises hands to remind the kids to start coding)

During the competition, the staff should check the stopwatch and record the score.....

2. There is 1 minute left.

(Action: The staff reminds the excess time of mission)

3. There are 30 seconds left.

(Action: The staff reminds the excess time of mission)

4. There are 5 seconds left, 5,4,3,2,1, the mission is over, the kid should put the tap-pen controller down right now.

(Action: The staff reminds the kids to stop operation)



Fruit Transport Mission

3 minutes



Scoring Stage

1 minute

Draft

1. During the fruit transport mission, the kid delivered X fruits totally.

(Action: The staff check the scoring and penalty)

2. The activity is over.

(Action: The staff reset the arena)

A) End of routine

Kids should complete both missions within the specified time, and each mission should not exceed the time specified in the task.

After switching from capture pest mission to transporting fruit mission, it is not allowed to return to the task of capturing pests again.

B) End early

If the kid completes the task of capturing all pests on the map in advance within 4 minutes, he/she can apply for ending the task in advance and entering the task of transporting fruit.

When transporting fruit, kids can apply for ending the activity early if they deliver all fruits to the corresponding fruit box in the fruit collection area within 2 minutes in advance.

C) Automatic termination

When the time of a single task is exceeded, the single task is automatically terminated by default.

If the kid fails to capture all the pests within 4 minutes, the staff will end the pest capture mission by default, start to score points for the mission.

If the kid fails to deliver all the fruits to the corresponding collection area within 2 minutes, the staff will end the activity by default.

Part 4 Scoring and Penalty



Scoring

Pest Capture Points

Whether the capture is successfully completed:

After the kid starts the route programming instruction, when the robot automatically walks to the position of the pest card, there will be obvious changes in digital expression and voice. Then it will judge that the kid has successfully captured the pest on the pest card and calculate the score.

Scoring:

The number of the pests on all the scored pest cards=pest capture points, 1 pest=1 point and each card can only be scored once.

Fruit Transport Points

Whether the delivery is successfully completed:

The kid points to the direction command card and runs the robot to completely enter the collection area corresponding to fruit types on the map, and the robot has obvious changes in expression and voice when entering the collection area.

Scoring:

After the fruit transport mission, the staff checked the number of fruits in the fruit box and recorded the score according to the number of model fruit in the fruit box in the collection area, that is, the number of fruits in the fruit box = fruit points.

MAKE X Scoring

- **Total score of a single mission:** The sum of points effectively earned by a kid in a single mission after the deduction of violation points is removed.
 - ✓ Total points for pest capture mission=Points for pest capture-Points deducted for violation
 - ✓ Total points for fruit transport mission=Points for fruit transport-Points deducted for violation
- **Full score of a single mission:** In a single mission, the kid completes all the schematic contents on the drawing mission card, and no violation points are deducted during the mission. The effective points of all the manipulative actions of the robot is regarded as a full points for a single mission.
- **Penalty Points:** The deduction points for violation according to the penalty rules.
- **Bonus Points:** The kid will get 1 bonus points if he/she decorates their robot (including but not limited to costumes, hats, and stickers).

Scoring-“Pest Capture Mission”



Regardless of penalty, as the picture shows:

The kid has got 3 pest cards, corresponding to “1 Pest, 2 Pests, 5 Pests”

So in this pest capture mission:

The kid has received a total of: **$1+2+5=8$ points**

Scoring-“Fruit Transport Mission”

In the left fruit box: In the right fruit box:
2 Apples, 1 Orange 1 Pear, 1 Mango



Regardless of penalty, as the picture shows:

The fruit box on the left delivered 3 fruits, the fruit box on the right delivered 2 fruits, and the fruits they delivered are all right, the score is effective.

So in this fruit transport mission:

The kid received a total of **3+2=5 points**



Penalty

1. Before the activity, the robot should be placed completely in the starting area and made stationary and it's not allowed to run in advance.
2. Kids are not allowed to touch the robot without the staff's permission during the activity.
3. Kid should put down the tap pen controller immediately once the activity ends.
4. Pest Capture Mission: Each pest card can only be used once.
5. Fruit Transport Mission: do not knock down the fruit trees.
6. During the activity, the kids are not allowed to maliciously damage the map or model props.



Penalty

7. Special Case Description:

- ✓ If the robot is out of the map due to the misperating, the staff can assist the kid to take the robot back to the starting area and restart the mission. The robot must be restarted in the starting area.
- ✓ If the kid drops the fruit props on the map or out of the map, the staff can assist the kid to take the fruit props and robot back to the starting area and restart the mission. The robot must be restarted in the starting area.
- ✓ It is allowed to reduce the difficulty by reducing the number of pest cards and fruit trees.
 - No less than 3 pest cards.
 - No less than 2 fruit trees.

Part 5 Scoresheet



Scoresheet

Pest Capture Mission
-Scoring Area

Bonus-Scoring Area

MakeX Inspire Fruit Wonderland Scoresheet

Number	Name	Pest Capture Mission-Total Points					Fruit Transport Mission-Total Points	Bonus Points	Violation Deduction	Total Points	Remark
eg.	Max	1	2	3	4	5	1+3+4=8	3	1	11	4 years old
1		1	2	3	4	5					
2		1	2	3	4	5					
3		1	2	3	4	5					
4		1	2	3	4	5					
		1	2	3	4	5					
		1	2	3	4	5					
7		1	2	3	4	5					
8		1	2	3	4	5					

Name

Violation
Deduction

Fruit Transport Mission
-Scoring Area



Scoresheet-Sample

MakeX Inspire Fruit Wonderland Scoresheet													
Number	Name	Pest Capture Mission-Total Points					Fruit Transport Mission-Total Points			Bonus Points	Violation Deduction	Total Points	Remark
eg.	Max	1	2	3	4	5	1+3+4=8			3	1	11	4 years old
1		1	2	3	4	5							
2		1	2	3	4	5							
3		1	2	3	4	5							
4		1	2	3	4	5							
5		1	2	3	4	5							
6		1	2	3	4	5							
7		1	2	3	4	5							
8		1	2	3	4	5							

Q&A

The background is a solid dark blue. On the left side, there is a large, stylized arrow pointing right, composed of several overlapping layers in shades of dark blue and maroon. On the right side, there is a similar large, stylized arrow pointing left, composed of several overlapping layers in shades of dark blue and a lighter blue. In the center of the image, the text "Thanks !" is written in a white, sans-serif font.

Thanks !