

## Little Engineer Detailed Activity Outline

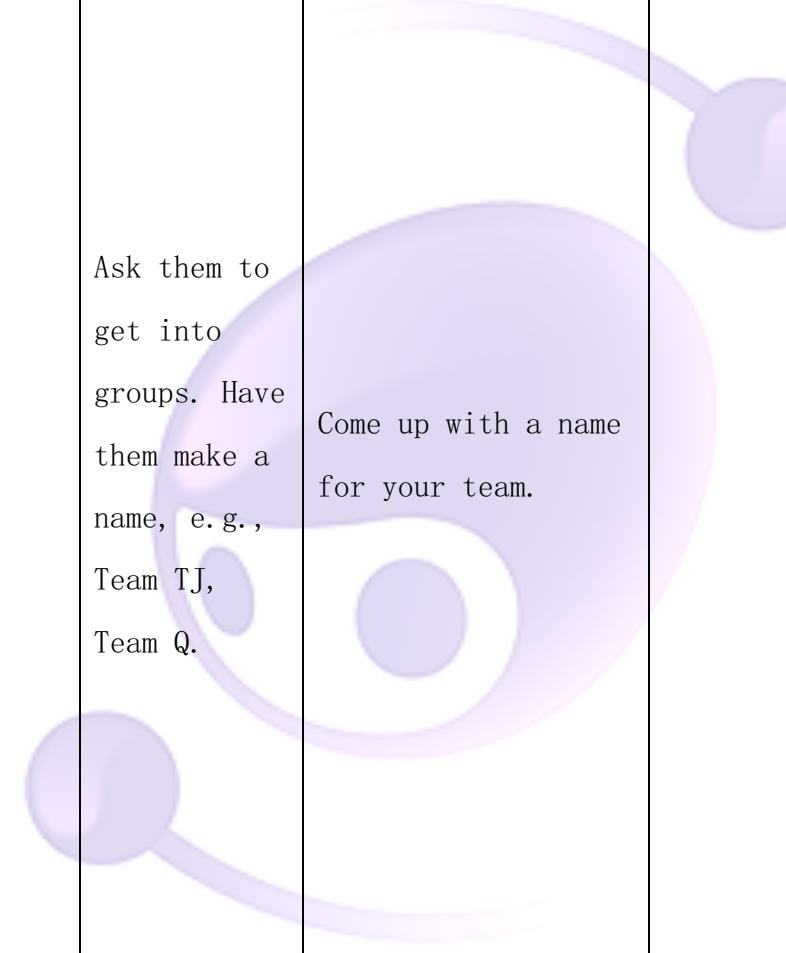
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| <b>Download</b>        | <a href="http://fir.im/pteduhbccn">http://fir.im/pteduhbccn</a><br>Password: 123  | <b>Topic</b>          | Forest Adventure Log |
| <b>Age group</b>       | 5-8 years old   | <b>Class duration</b> | 60 minutes           |
| <b>App Description</b> | Little Engineer is an interactive coding game for kids from ages 4-10. Kids learn coding basics when they progress in this game and help the Alien Q get back to his home planet. Every stage is a specifically designed maze for kids to solve.            |                       |                      |
| <b>Goals</b>           | <ul style="list-style-type: none"> <li>● To create “ABAB” patterns and sequences.</li> <li>● Use commands (go forward and turn left commands) to complete tasks.</li> <li>● Use programming tools to get rid of mushroom monsters.</li> </ul>               |                       |                      |
| <b>Materials</b>       | <ol style="list-style-type: none"> <li>1. <i>Little Engineer</i> app</li> <li>2. Tablet</li> <li>3. Programming blocks</li> <li>4. Magic bag</li> <li>5. DIY rubber ball (two bags of colored sand, one plastic ball mold)</li> <li>6. Container</li> </ol> |                       |                      |

## Activity Content

| <b>“Forest Raider”</b>               |                 |  |                  |                  |  |  |
|--------------------------------------|-----------------|--|------------------|------------------|--|--|
| <b>Class time: 60 minutes</b>        |                 |  |                  |                  |  |  |
| <b>Content 1: Warm-up</b>            |                 | <b>Content 2: Secret of the Forest</b>         |                  |                  |  |  |
| Time: 5 minutes                      |                 | Time: 15 minutes                               |                  |                  |  |  |
| Greeting                             | Warm-up         | “Recruitment”                                  | Crack the Code   | Forest Path      |  |  |
| Time: 3 minutes                      | Time: 2 minutes | Time: 2 minutes                                | Time: 3 minutes  | Time: 10 minutes |  |  |
| <b>Content 3: Blocks on the Path</b> |                 | <b>Content 4: Mushroom Monsters in the Way</b> |                  |                  |  |  |
| Time: 10 minutes                     |                 | Time: 20 minutes                               |                  |                  |  |  |
| I Say It, You Do It                  | Fix the Path    | Mushroom Monsters in the Way                   | Locked Path      |                  |  |  |
| Time: 5 minutes                      | Time: 5 minutes | Time: 10 minutes                               | Time: 10 minutes |                  |  |  |
| <b>Content 5: Forest Raider</b>      |                 | <b>Content 6: The End</b>                      |                  |                  |  |  |
| Time: 5 minutes                      |                 | Time: 5 minutes                                |                  |                  |  |  |
| Mysterious Treasure                  | Rubber Ball     | Summarize                                      | Relax            |                  |  |  |
| Time: 1 minute                       | Time: 4 minutes | Time: 1 minute                                 | Time: 4 minutes  |                  |  |  |

## Process

| Segment | Content  | Time      | Process                              |   |        |  |
|---------|----------|-----------|--------------------------------------|---|--------|--|
|         |          |           | Content                              | Speech  | Screen | Teaching notes   |
| Warm-up | Greeting | 1 minute  | Start introduction                   | <p>Hello, everybody!</p> <p>I'm</p> <p>Mr. /Mrs. /Ms. /Miss</p> <p>Grape. Wave and say hello!</p> |        | <p>Pay attention to each student.</p> <p>Develop a feeling of closeness.</p> |
|         |          | 2 minutes | Divide students into several groups. | <p>Next let's play a game to see if you remember my name.</p>                                     |        | <p>Help them remember your name through a game to get closer to them.</p>    |

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|  |  |  |  | <p>Ask them to get into groups. Have them make a name, e.g., Team TJ, Team Q.</p>  | <p>Come up with a name for your team.</p> | <ol style="list-style-type: none"><li>1. Split into groups.</li><li>2. You can make three groups of students, parents, and teacher if parents are participating.</li><li>3. Suggestions for grouping:<ol style="list-style-type: none"><li>a. Boys vs. girls.</li><li>b. By table, e.g., first row Team TJ,</li></ol></li></ol> |
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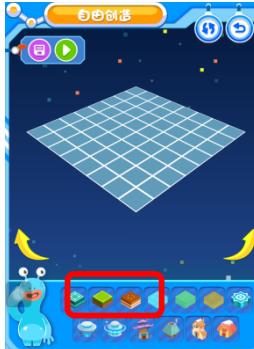
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|         |           |                           |  |  | second row<br>Team Q. |
|         |           | Start a game.             | <p>1.</p> <p>Mr. /Mrs. /Ms. /Miss Grape' s gonna jump! (x3) Team TJ jump! (x3)</p> <p>Team Q jump! (x3)</p> <p>2. Great job everybody. Shout it out: what' s my name?</p>                          |  |                       |
| Warm-up | 2 minutes | Introduce the character Q | <p>Let' s meet a new friend. His name is Q. He' s got two big round eyes, a big mouth, and a round body.</p>  |  |                       |

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|                      |             |           | Start the “rush forward” warm-up                | Today we’re going to go into the forest with Q and find a mysterious treasure. But first let’s exercise a bit.                        |  | Find a suitable exercise in the teaching handbook appendix. |
| Secret of the Forest | Recruitment | 3 minutes | Set the mood                                    | If you want to enter the forest and get the treasure, you have to crack the code first. Who’s brave enough to crack the code with me? |  | Set the mood, invite students to participate.               |
|                      |             |           | Put on some music. Have them line up behind you | Grab my shoulders and form a train. Climb aboard and let’s go!  |  | 1. Invite students to play.                                 |

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|                |           |   | with their hands on the shoulders of the one in front of them.   |  | 2. For a class of 15, 8-10 students recommended to participate.  |
| Crack the Code | 2 minutes | Tell them to close their eyes, then put a toy in their hands. | 1. We're at the station. Everybody turn to the left (right).<br>2. Next, close your eyes and stick out your hands. |  | 1. The aide puts a toy in each participant's hand.<br>2. Place the toys in order by size, small-large-small-large. |

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|  |  |  | <p>Have them look at the toy in their hands.</p> | <ol style="list-style-type: none"><li>1. Everyone open your eyes. What's in your hand? Hold it out.</li><li>2. Everyone think: what's the pattern here?</li></ol>  |  |  |
|  |  |  | <p>Get them to crack the code</p>                | <ol style="list-style-type: none"><li>1. The toys are arranged small-large-small-large. So if we call the big one 'A' and the little one 'B,' how can we express the order?</li><li>2. The code we need for the forest today is just that: "ABAB."</li></ol> |  |  |

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| Forest Path | 10 minutes | Have everyone open the app and enter the creation screen. | 1. Because of your help we cracked the code for the forest. Now we can go in. But we still need to make a path. We have to use programming to help Q make it. Everybody find the icon with Q's face on it.<br>2. What do you see? Let's talk about it.<br>3. This is what we're using to code today. It's called <i>Little Engineer</i> . This |  |  |  |

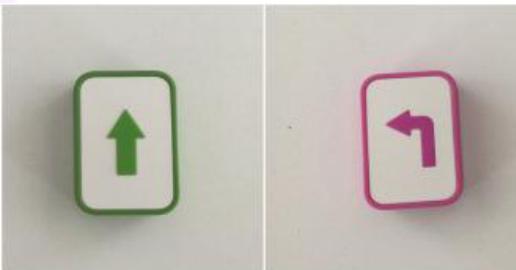
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|  |  |   | <p>little guy here is called Taqtyx, from the planet Pu' Tao. Next to him is someone we already met: Q.</p> <p>4. Click the blue button, then click the green one to start!</p>          |  |  |
|  |  | <p>Introduce them to the blocks on the creation screen.</p> | <p>1. First let's see what we need to make a path.</p> <p>2. These are the three blocks we're using today. Let's get to know them. The blue one is a floor block. The green one is a</p> |  |  |

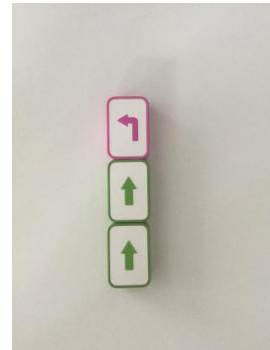
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|  |   |  | <p>patch of grass. And this brown one is the cake block.</p>                         |   |  |
|  | <p>Use the blocks to build an “AB” path.</p>                | <p>Everybody use patches of grass and floor blocks to build a straight path.</p> |   | <p>Help them learn to move the materials on the screen.</p> |  |
|  | <p>Use the blocks to build a straight path to the left.</p> | <p>Everybody think. Can you build a path that turns to the left? Try it.</p>     |  |   |  |

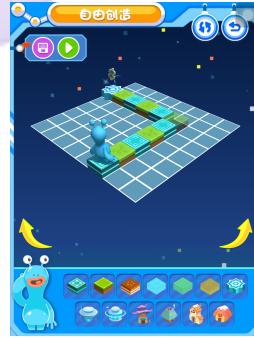
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|  |  |  | <p>Finish the path and add Q.</p> <p>1. The path is done, but we're still missing an ending point. Everybody find the end point block and put it at the end of the path.</p> <p>2. Now who's missing (Q)? Let's click the starting point and add Q.</p> |   | <p>When you add Q, you can click the arrows on either side to adjust his direction.</p> |
|  |  |  | <p>Enter the command screen.</p> <p>1. Let's think. How can Q go down the path?</p> <p>2. Let's click this green button to enter the command screen.</p>  |  |   |

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|  |  |  | <p>Introduce the go forward and turn left commands.</p> <p>1. Q can't go forward by himself; he needs us to help him. Just now someone said Q can go straight then turn left to get to the end. So let's get to know the commands.</p> <p>2. The first command on the left is called the go forward command; the second is the turn left command; next is the turn right command; then, the jump command; last is</p> |  | <p>How to: move the commands into the command screen, then press the blue button to start Q on his way.</p> |
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|  |  |   | <p>the get bigger command.</p> <p>3. We just have to move the commands into the command screen then push the blue button. Then Q will go forward. Try it!</p> |  |  |
|  |  | <p>Use commands to help Q go down the path.</p> |   |  |  |

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|                    |                     |           | Open the box.        | Everybody open the box on your table.   |   | Remind them to lock their screens. |
| Blocks on the Path | I Say It, You Do It | 5 minutes | Introduce the parts. | <p>1. Just now when we helped Q go forward, we learned the go forward and turn left commands. Can you find them?</p> <p>2. Let's get to know these two blocks. The one with the straight arrow is the go forward command. The one with the left-turning arrow</p> |  |                                    |

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|  |  |  |  | is the turn left command.  |  |   |
|  | Use the blocks in the game.  |  |  | Next, when I say a block, find it quick and hold it up. Let's see who can do it the fastest.   |  | Say "go forward block." They'll find it and hold it up. |
|  | Have them follow your instructions to pick the right blocks and build the path |  |  | Now let's make it more difficult. I'm going to say some commands, then you put them together in the order I say them to make a path. For example, go |  |   |

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|              |           |  |  | forward, go forward, turn left.   |  |  |
| Fix the path | 5 minutes | Look at the screen and talk about what you see.      | 1. Everybody look at the screen. What's the difference between this one and the one we just built? |  | Before fixing the glass block, Q doesn't have a complete path. |  |
|              |           | Have them think about which block will fix the path. | 2. How is Q going to get over the gap? Which block can we use to fix the path?                     |   | Q can use the turn left block to complete the path.            |  |

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|  |  | Show the way to fix it.   | <ol style="list-style-type: none"> <li>1. First let's pick a turn left block.</li> <li>2. Then let's put it on the table and move it into the gap.</li> </ol> |   | Put the turn left block on the table, then move it into the glass block and wait for it to complete. |
|  |  | Turn on the tablet and hit the fix button to enter the creation screen. |   |  |  |

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|  |  | <p>Delete a grass patch and place a glass block.</p>             | <p>1. Click the grass patch, then click the trash can.<br/>2. Then find the glass block – first row, five from the left – and move it onto the path.</p> |   |  |
|  |  | <p>Use the blocks and commands to help Q complete the level.</p> |  |  |  |

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|  | Mushroom Monsters in the Way | 10 minutes | <p>Look at the big screen.</p> <p>1. Everybody did a great job helping Q get through the forest.</p> <p>2. Q came across another problem on the path. Let's look at the screen.</p>     |  | Remind them to lock their screens. |
|  |                              |            | <p>Talk about how you can get rid of the mushroom monster</p> <p>Because of your hard work, Q got through the forest. But now there's a mushroom monster in the way. What do we do?</p> |   |                                    |

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|  |  |  | <p>Introduce the tools and the get bigger command.</p> <p>Let's meet a new tool today. We just have to move it into the board then press the blue button to start. Then when we hit a mushroom monster, we'll say "get bigger, get bigger" to help Q out. Then he'll get bigger and get rid of the monster in the way.</p> |  | <p>How to use:</p> <ol style="list-style-type: none"> <li>1. Press the red button and find the get bigger tool. Then, place the get bigger command inside of the tool.</li> <li>2. Press the blue button to make Q bigger.</li> </ol> |
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|  |                                 |  | <p>Press the button to enter the programming screen.</p> <p>Click the yellow button to enter the programming screen.</p> |   |   |
|  | <p>Place a mushroom monster</p> |  | <p>Let's try to put a mushroom monster on a patch of grass!</p>  |  | <p>How to: Click the patch of grass, then click the mushroom monster in the item board.</p> |

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|             |            |  | Use blocks and commands to get rid of the mushroom monster and reach the end point. | Let's try to get rid of the mushroom monster and reach the end!  |   | First use the turn left block to fix the path. Then use tools to get rid of the mushroom monster. |
| Locked Path | 10 minutes |  | Look at the big screen.   | <ol style="list-style-type: none"> <li>1. Thanks to you we helped Q get rid of the mushroom monster. Now let's keep going.</li> <li>2. Look at the screen. What do you see?</li> </ol> |  | Remind them to lock their screens.  |

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|  |  |  | <p>Find the pattern to complete the path.</p>     | <p>Look at the missing parts. Which blocks should we use to fix them?</p> |  |  |
|  |  |  | <p>Use the materials to make a complete path.</p> |   |  |  |

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|  |  |  | Place Q at the starting point.                        |   | How to place Q: click the starting point, then click Q in the item board.  |
|  |  |  | Use the commands mastered to help Q go down the path. |  | Suggestion:<br>Depending on their level, have the students place mushroom monsters on patches of grass and use commands to complete the level. |

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| Forest Raider | Mysterious Treasure | 1 minute | <p>Pull out the magic bag. Have them guess what's inside.</p>                            | <p>Thanks to your help, we made it through the forest, got rid of the mushroom monsters, and got the magic bag. What's inside this bag is the treasure we were looking for.</p> |  | <p>Put the rubber balls in the magic bag.</p> |
|               |                     |          | <p>Have them describe what they felt, then the other students will guess what it is.</p> | <p>Have a student come up to feel what's in the bag, then describe what they feel.</p>  |   |   |

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| DIY Rubber Ball | 4 minutes | Introduce them to the materials. | Would you like to have your own rubber ball? These are the ingredients I have (two bags of colored sand and a rubber ball mold). Let's think of a way to turn them into a ball. |  | Materials:<br>1. Two bags of colored sand.<br>2. One rubber ball mold. | How to make:<br>1. Take two halves of a ball and put them together.<br>2. Pour the sand into the ball. |

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|  |  |  |  |  |  | <p>3. Take an empty glass and fill it with water.</p> <p>4. Slowly pour the water into the sand and leave it for 10 minutes. Remove the ball.</p> <p>5. After three minutes, cut away the pieces left over from the mold.</p> |
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|         |           |          | Use the materials to create the rubber balls. |  |  |  |
| The End | Summarize | 1 minute |   | Everybody was great today! We cracked the code to get into the forest. Do you remember what it was (ABAB)? Then we used commands to help Q go forward and turn left to get through the forest, and used tools to get rid of the mushroom monsters in the way. And last but |  |  |

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|           |           |  |  | not least, we got<br>the hidden treasure<br>in the forest.<br>Let's explore more<br>next time!       |  |   |
| Cool down | 4 minutes |  |  | 1. Class is over<br>for today. Let's<br>do an exercise<br>together.<br>2. See you next<br>time! Bye! |  | Pick a<br>suitable cool<br>down exercise<br>from the<br>teaching<br>handbook<br>appendix. |