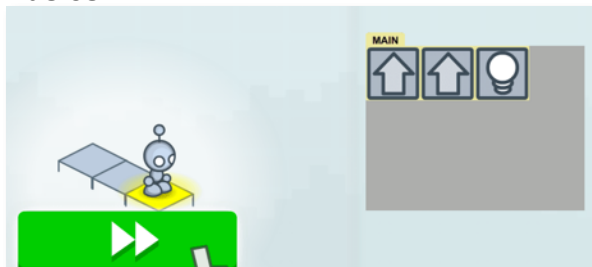


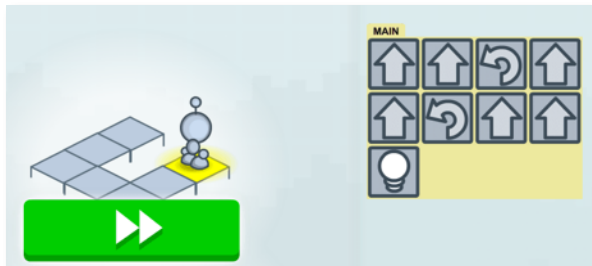
These solutions are meant to be used as a guide. Refrain from showing students a solution directly and encourage testing partial-solutions and using a “what-if-we-do-this” kind of hinting.

There can be **multiple correct** solutions for each level, here we provide common solutions.

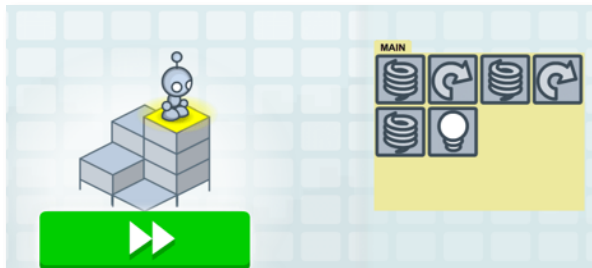
Basics 1



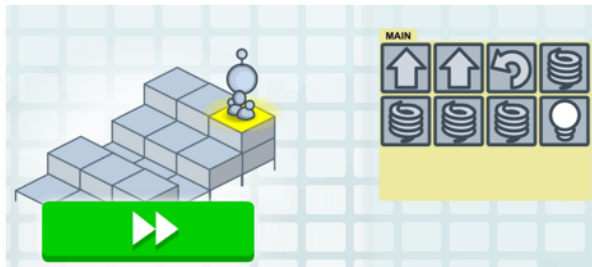
Basics 2



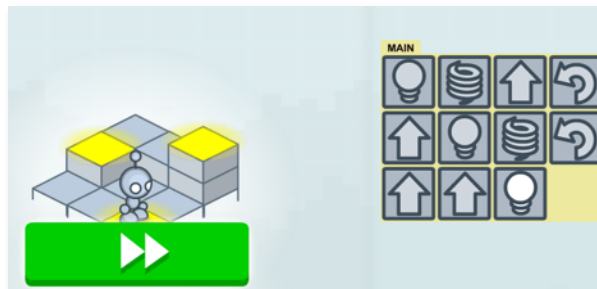
Basics 3



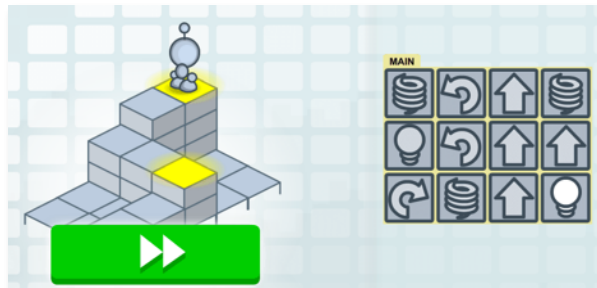
Basics 4



Basics 5



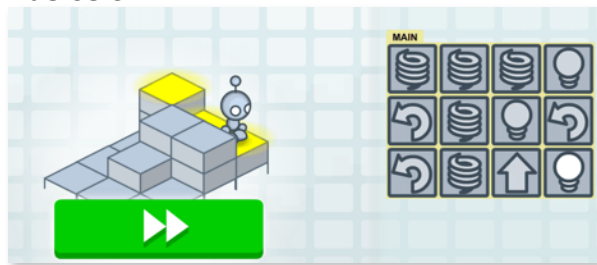
Basics 6



Basics 7



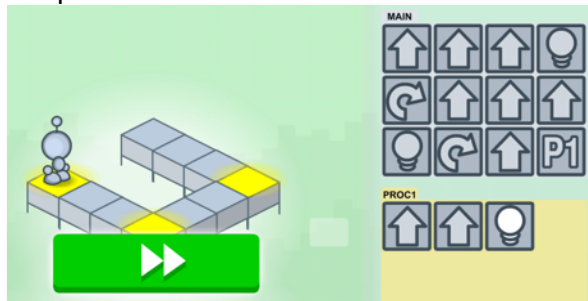
Basics 8



The first two levels only introduce Procedures without mentioning their usefulness for patterns. There are two types of solutions students may provide. 1) is just **P1** used as an extension to **MAIN**, whereas 2) makes use of **P1** multiple times as a pattern.

Procedures 1

Simple Method:

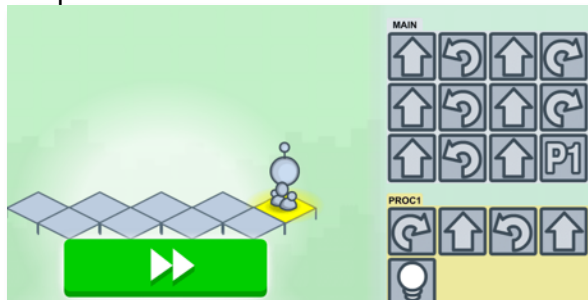


Using Pattern (Elegant Solution):

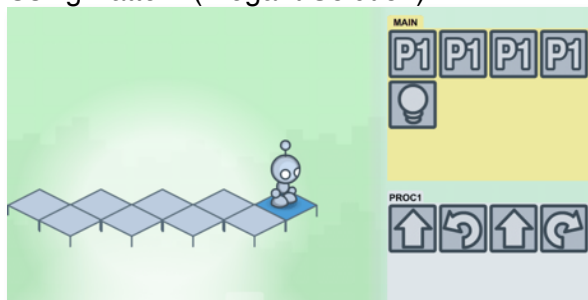


Procedures 2

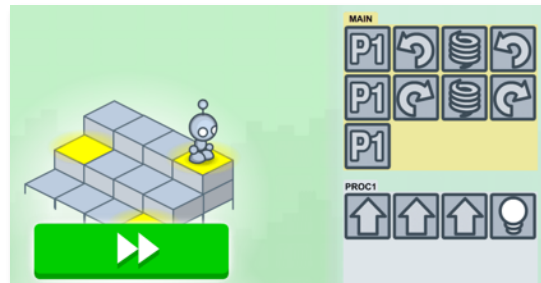
Simple Method:



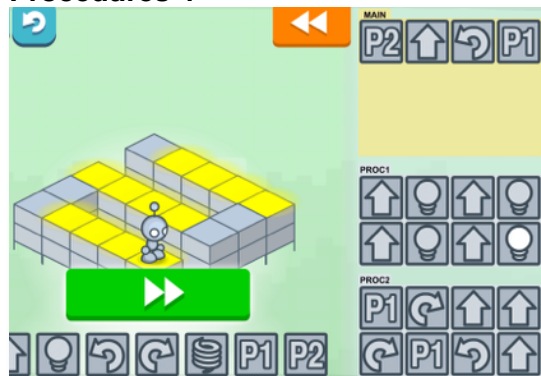
Using Pattern (Elegant Solution):



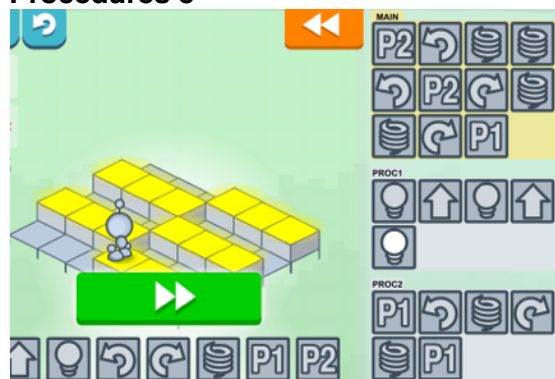
Procedures 3



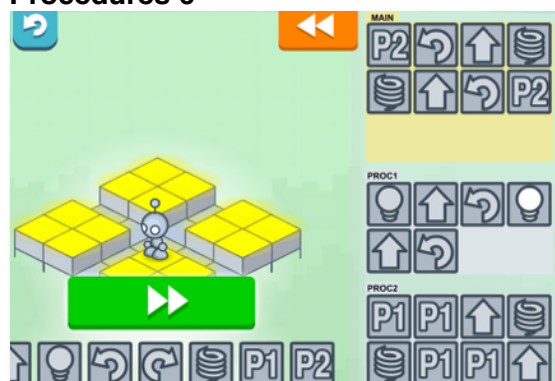
Procedures 4



Procedures 5

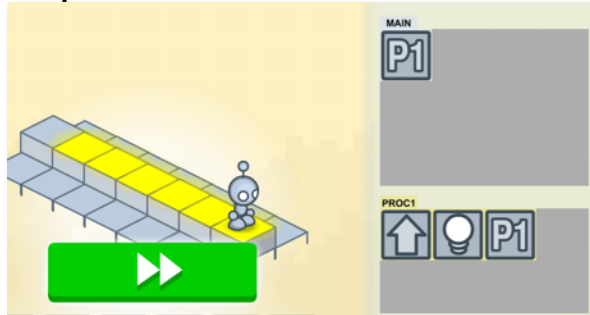


Procedures 6

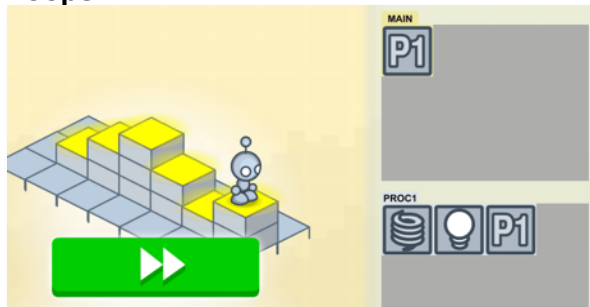


Teachers may want to mention that in Lightbot, loops terminate automatically once the level is complete and all the tiles are lit.

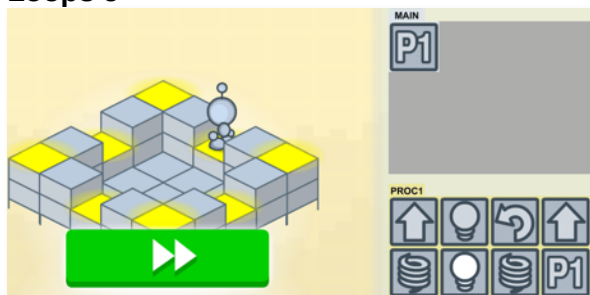
Loops 1



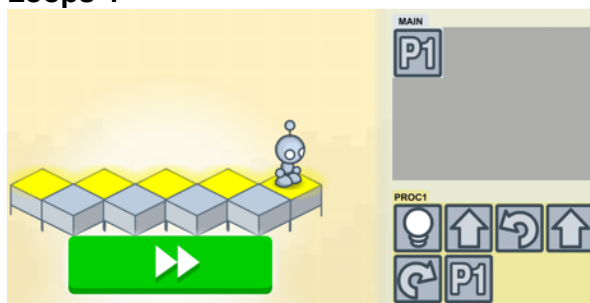
Loops 2



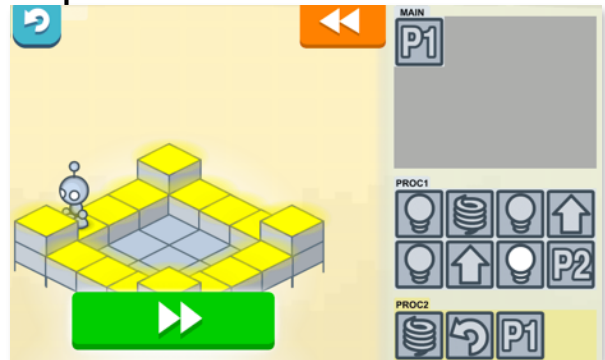
Loops 3



Loops 4



Loops 5



Loops 6



End of Solutions

We'd like to, again, point out that there can be **multiple correct** solutions for each level, some that are not shown here.

Teachers can encourage those students who finish the activity early to either help other students, or, compete with other classmates to see who can find shorter solutions.

Only when all levels are complete, the first page in the menu shows a total tally of shortest number of commands used in each level. **Lower Score = Better.**

