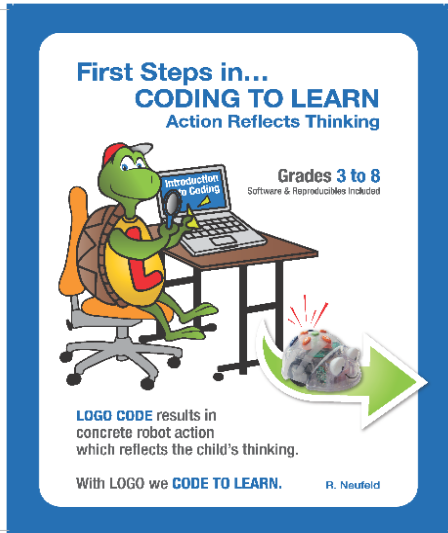


Workshop Notes: First Steps in CODING TO LEARN

(a course outline)



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Math & Coding by Neufeld Learning

www.umathx.com



DESCRIPTION: This introductory session, uses videos, notes and an eBook course outline with step-by-step instructions to introduce coding in an environment rich in mathematics. Previous knowledge of coding is not required. Coding begins with commands, procedures, variables, recursion and projects. Logo, a simple, powerful coding language, referred to as the “language of learning”, results in action to reflect thinking. Free access to software, resources and curriculum correlation enables all to achieve during and after the session.

THE STEPS for Virtual or Person to Person Sessions (with or without a leader).

FIRST: ACCESS VIDEO ... <https://www.umathx.com/professional-learning/>

Select Session 2 .. Click on the Link to the Video on the left.

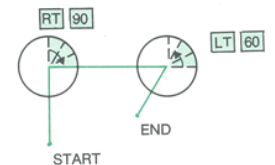
See the Video to 9:10 ... Coding Introduction within the E-book

- **Comments** from TABLE of CONTENTS, FORWARD and PREFACE
- **“The Flow of our Learning”** in Chapters 1 and 2 of eBook.



Chapter 1 .. First Steps to Coding

Sequencing exercises on the floor
A person walks the code



Chapter 2 .. Code a Floor Robot ..The Blue-Bot

Prediction Activity Chart

The **Blue-Bot** brings **Science, Technology, Engineering and Mathematics** into the classroom.

SECOND: ACCESS ... <https://www.umathx.com/coding/>

Select the E-Book Sample

Briefly check and discuss Ch 1, 2 Activities .. pages 1,4,5,7,8,19,24,29,31/34,35,37,58

THIRD: ACCESS Part 2 .. <https://www.umathx.com/professional-learning/>



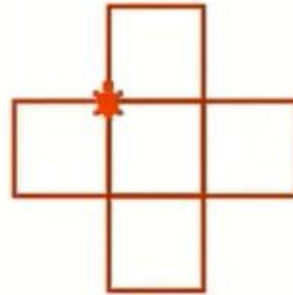
Continue the Video from 9:10 to 17:20

Introduction to Coding on the Computer Screen

Dr. Seymour Papert of MIT developed LOGO, a powerful visual coding language, which uses code to direct a robot on the computer screen.

Procedures (lessons) build knowledge upon knowledge....

```
> TO BOX
BOX defined
> CS
> BOX
```



```
>REPEAT 4[REPEAT 4[FD 60 RT 90] RT 90 FD 60]
```

FOURTH: ACCESS to eBook ... <https://www.umathx.com/coding/>

Select the E-Book Samples. Check some examples shown in the video above.

Briefly check and discuss: Page 67, Activity #1: Explanation

Page 68, Activity #1: Investigate, Predict, Journal

Page 76, Activity #9: REPEAT, WAIT, COLOR, SETWIDTH

Page 93, 94, 96: The Square

FIFTH: Gain FREE FUNCTIONALITY to Terrapin LOGO for a limited time on your own computer, enter the following URL ... <https://weblogo.terrapinlogo.com>

Following graphics appear.

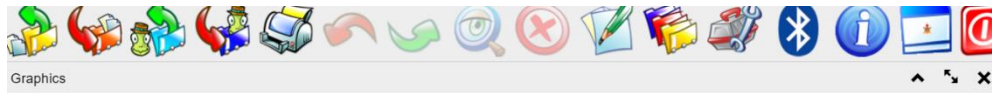
Log in:



Click on the second graphic.

Enter a temporary Classroom Name password. (contact info@umathx.com)

Ignore the second line. The following two panels will appear.



- >The **GRAPHICS PANEL** has a robot, a turtle, at the center.
- >The **LISTENER PANEL** is where one writes code to command the robot.
 - > Click right of the **>**. This is where code is entered.

Key in ... **> CS HOME FD 35**

Then press the **<enter>** key which tells the robot to **DO IT!**

Check examples listed above in the eBook on pages **67, 68, 76, 93, 94, 96** with Logo on your computer.

In Building New Knowledge on Existing Knowledge...ie Procedures (chapter 5)

... see page **129**

... then check page **138, 139, 140**

Now test work on pages **138, 139, 140** ... then **147** with Logo on your computer.

Note and Discuss the Procedures on page **158**

SIX: Video **17:12 to 27:25** .. **Coding Activities for All in the E-Book..**

Optional sections to give a quick overview of possibilities.



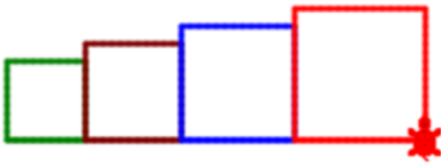
```
TO SQUARE
  SETPC 4
  REPEAT 4[FD 60 RT 90]
END
```

```
TO LINEOFSQUARES
END
```

Add ..

repeat 4[square rt 90 fd 60 lt 90]

Variables: .. predict, discuss, test



TO BOX :L

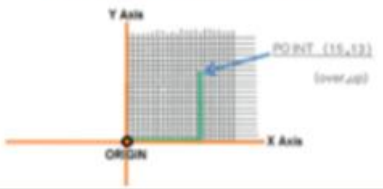
```
SETPC 4 SETWIDTH 3 SLOWTURTLE
REPEAT 4[FD :L RT 90]
RT 90 FD :L LT 90
END
```

Recursion: see pg 196 for *IDEA#1* and *IDEA#2* & complete below



TO SQUARE TO WORK1 OR TO WORK2

The Address

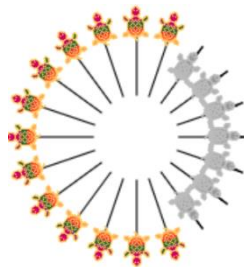
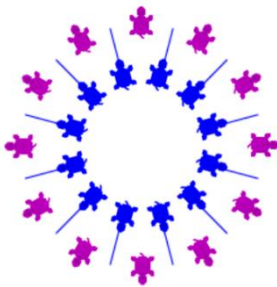


Move to point (40 -50)

ie command ... **>SETXY [40 -50] PRINT YCOR**

Multiple Turtles: A process for New Learning.

Explore ... Describe ... Predict – Test – Explain – Followup



```
>DRAW C TURTLES 20 FD 50
>TELLALL 2 8 EACH [PD BK 20 SETPC 8] WHO
```



For **ALIGNMENT to CODING CURRICULUM** see ... www.umathx.com/coding

contact rneufeld@umathx.com for assistance or ideas.

Thank You!