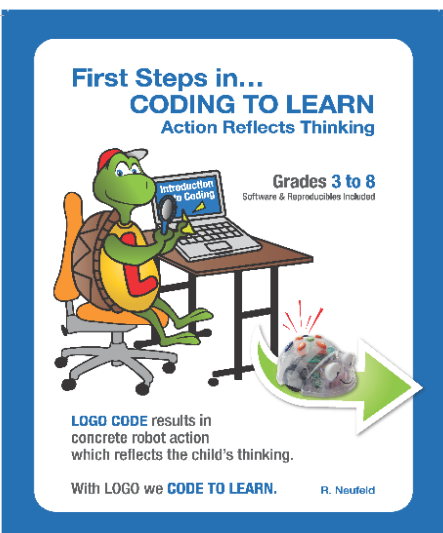


Workshop Notes: First Steps in CODING TO LEARN

(a course outline)



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 Math & Coding by Neufeld Learning
www.umathx.com



DESCRIPTION: This introductory “hands-on” course outline, uses videos and an eBook with step-by-step instructions to introduce coding in an environment rich in mathematics. Previous knowledge of coding is not required. Coding begins with optional activities involving walking the code, sequencing and a Blue-Bot leading to a world of procedures, variables, recursion and projects on the computer screen. Logo, a simple, powerful, mathematical coding language results in concrete action to reflect thinking. Hence

Logo is referred to as the “language of learning” in which we “code to learn”. Free access to software and eBook during and after a session encourages all to risk and achieve.

SUGGESTED USE of Video, E-Book and Workshop Notes

www.umathx.com/coding/ Select **E-Book Sample**

www.umathx.com/professional-learning/ Select **Session 2 Video & Notes**

<https://weblogo.terrapinlogo.com> to access LOGO on your computer now.

Use a temporary Classroom Name password.

Video 3:31 VIDEO Part 1 .. Coding Introduction within the E-book

See comments from TABLE of CONTENTS, FORWARD and PREFACE of the eBook in the video.

• The Flow of our Learning:



Chapter 1 .. First Steps to Coding

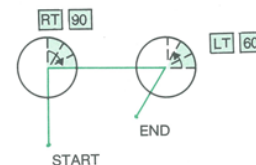
Sequencing exercises on the floor
 A person walks the code



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

Prediction Activity Chart ..in Ch 2..pg 29 on video and pg 37 in online eBook.

- The **Blue-Bot** brings **Science, Technology, Engineering and Mathematics** into the classroom.
- **Discuss Concepts in Video Part 1 & Demonstrate**



Video 9:11 VIDEO Part 2 .. Hands-On .. Coding on the Computer Screen



Chapters 3 to 9 .. Coding on the Logo Computer Screen

LOGO, models a Learning Environment which encourages one to **Teach** rather than to simply **Tell**. Logo is a simple, yet powerful visual coding language.

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

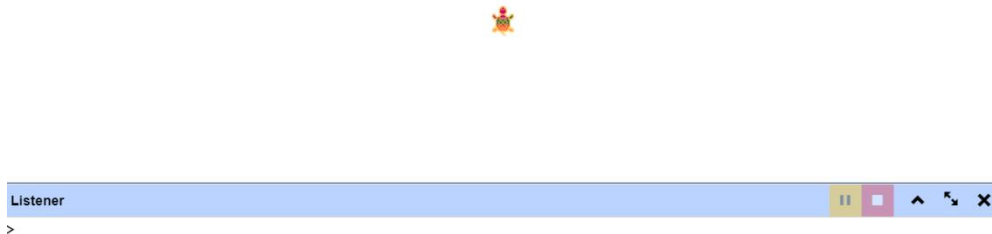
For free complete functionality to the Terrapin LOGO Learning Environment for a limited time on your own computer, enter the following URL ...

Log in:



Click on the second graphic.

Enter .. **CLASSROOM NAME** .. that you will be given. (ignore the second line)



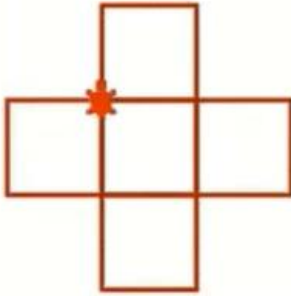
Two Panels appear. The **GRAPHICS PANEL** has a robot at the center. The **LISTENER PANEL** is where one writes code to command the robot. Participants should follow along with initial commands on their own device.

Build Knowledge on Existing Knowledge.

Some Commands:

>setwidth 3 or setw 3	>setspeed 0.1 to 1
>setturtlesize 2 or setts 2	>slowturtle

Teach & Test a Procedure, BOX



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

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

Graphics

Coding Through LOGO, Models Teaching with Understanding

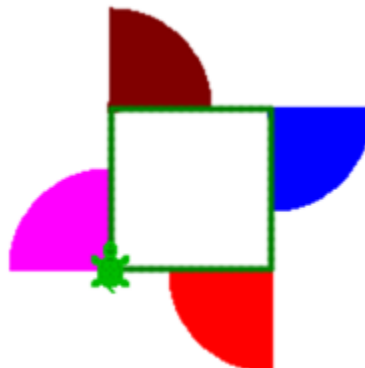
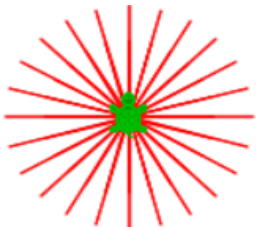
Listener

```
> TO BOX
BOX defined
> CS
> BOX
> CS
> REPEAT 4[BOX RT 90]
```

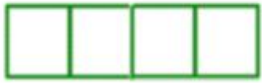
VIDEO 17:10 **VIDEO Part 3** .. Coding Activities for All in the E-Book..

Closed shapes, Variables, Recursion, X-T Plane, Multiple Turtles

E-Book Page 77, 88



Build Learning on Learning ... Procedures



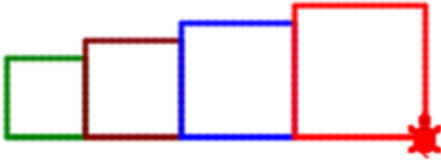
```
TO SQUARE
  SETPC 4
  REPEAT 4[FD 60 RT 90]
END
```

```
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 182, 183 for IDEA#1 and IDEA#2 & complete below



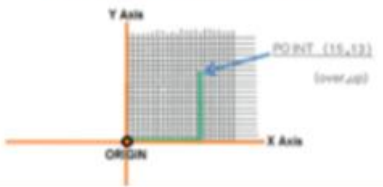
TO SQUARE

TO WORK1

OR

TO WORK2

The Address

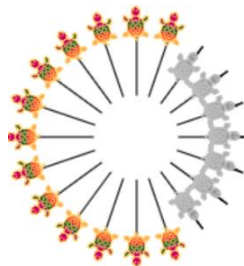
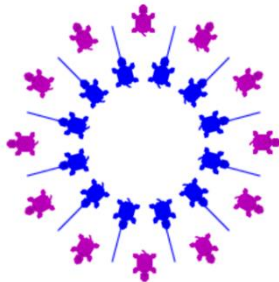


Move to point (40 -50)

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 a District CODING CURRICULUM..

contact r_neufeld@umathx.com

Thank You!