Botball Lesson Plan

Title: Programming: Functions

Concept / Topic to Teach: Using functions for repeated actions

Standards Addressed:

Goal:
By the end of this activity, students will be able declare and implement functions for repeated actions.

Anticipatory Set:
This is important because using functions makes a program easier to read and write.

Time Required:

Required Materials: Computer with KISS-IDE, Demo bot, download cable

Activity Procedure:
1. Open KISS-IDE
    a. Target: CBCv2
    b. New Program
2. Watch Video
3. Try it out
    a. Write a function for turning
    b. Write a function for driving straight

Assessment:
Students write code to drive robot in a square.
Code should include:
1. Function prototype
2. Function call inside of main statement
3. Function definition after the main statement

Should be no more than 8 lines of code inside the main statement.

Extension Activities:
The above assessment with 4 lines of code in the main statement.

Functions Handout

Before main statement:

Function type. Value that the function returns, will be "void" if not returning a value.
Function name. Name the function.
Values to pass into the function. Leave blank inside parenthesis if none apply.
Semicolon

Inside the main statement:

Call the function by its name, include the necessary values

After the main statement:

Repeat the prototype from above the main statement
Replace the semicolon with block of code

Example

```
void straight(int speed, int distance);
int main(){
	straight(300,1000);
}
void straight(int speed, int distance){
	clear_motor_position_counter(0);
	clear_motor_position_counter(3);
	mtp(0,speed,distance);
	mtp(3,speed,distance);
	bmd(0);
	bmd(3);
}
```