



Terry Fox Project – Teachers' Notes

Celebrate Terry Fox's Marathon of Hope Through Coding

Project Overview

This project consists of three separate application ideas as well as accompanying written materials to support students. Teachers might choose to have their students try **one**, **two** or all **three** applications.

Instructions, and extension ideas, for creating the three applications have been provided. One application involves students coding a step counter using the micro:bit and MakeCode program, while the other two applications involve students coding in LYNX, a text-based coding language designed in Canada.

Start in the Right Place!

Our team will help you set up private coding clubs, which will allow for your students to save their programs - in a way that both the students and you have easy access to them.

The written materials have been designed to support online and/or onsite learning. They can be printed or accessed online. Click on this link and scroll to Terry Fox Project:

<https://lynxcoding.club/Home/Help>.

A limited number of Terry Fox project kits are available on a *first-come, first-serve* basis until supplies run-out. The kits include these items:

- micro:bits V2; and
- printed written materials; and
- other materials for building the step counters

Please contact [Michael Quinn](#) at quinnma@gmail.com if you are interested.

We need you to complete a very short survey by Dec. 15, 2023. The Government of Canada is funding this CanCode project in full and the Government wants info about how successful this CanCode project is. NO individual or personal information about you or your students is sent to the Federal Government.

Project Applications:

Application	Technology and Software Applications Used
Step Counter	micro:bit V2 Makecode (web-based platform, internet required)
Terry Fox Steps	LYNX (web-based platform, internet required)
A Terry Fox Tribute Program	LYNX (web-based platform, internet required)

Unable to use micro:bits or other digital step counters?

Although the Interactive Steps Converter program requires the user to enter data collected from the step counter application, should the students **not** have micro:bits or are unable to use them, an [alternative option](#) has been included so that students may still create the converter program whether they complete the step counter program using micro:bits or not. The Terry Fox Tribute program does not require any prior information or any physical components to complete.

[Curriculum Connections](#)

to the Ontario Curriculum have been suggested for each application.

Links and Teacher Tips for each Application

Step Counter

See *LynxCoding.club*, *Help*, *User Guides for the student activity cards* or here's the direct link: <https://data.lynxcoding.org/help/en/Step%20Counter%20Activity%20Cards.pdf>

Required Technology:

- micro:bit (with USB cord, battery pack)
- Computer with access to internet (for makecode.com)

Description:

This application incorporates the micro:bit, a small programmable device that was created for educational purposes. Students will program the micro:bit to keep track of their steps, and wear it as they walk or run in the Terry Fox Marathon of Hope. Or maybe just in the schoolyard or local park.

Computer Programming Concepts Addressed:

- Sequential coding
- Variables, counter
- Physical computing
- Input/output (accelerometer sensor, buttons, LED display)

[Curriculum Connections](https://data.lynxcoding.org/help/en/TF_Curriculum_Connections.pdf)

Or here's the link: https://data.lynxcoding.org/help/en/TF_Curriculum_Connections.pdf

Common Errors and Debugging:

- If the value on the LED display indicates 0 and is not increasing with each step, ensure the variable name is used correctly throughout
- If changes made in the code are not reflected on the micro:bit, ensure the program is paired/uploaded to the micro:bit after each change is made.

Terry Fox Steps

Here's the link to LYNX Project: <https://terry-fox-club-1.lynxcoding.club/share/jmTXPeiC>

Required Technology:

Computer with internet access (for lynxcoding.club/)

Description:

Students learn how to convert Steps into Distance travelled (km, miles). They compare what they walked or ran to what Terry Fox ran.

The project consists of 3 pages.

Page 1

On Page 1, the student is invited to enter the number of steps she/he/they ran. Clicking the Calculate orange button converts this number into Kilometres and Miles (2 text boxes in lower right corner).

The code of the project assumes the length of Terry Fox's step is 60 centimetres.

Discuss with students whether a step length is the same for an adult or a child *their* age. What about a 3 year old? What about the centre on the Toronto Raptors?

Once students understand that step length can vary from person to person (depending on their age, height and way of walking), invite them to try estimating Terry Fox's steps. Were they shorter than the average steps of a person of the same age, the same length, or longer?

Optional Additional Challenge

```
5 setkm steps * 0,0006 ; 0
   ,0006 is Terry Fox's
   step length. Change this
   number if you think it's
   different
```

Students may want to edit the code if they decide Terry Fox's steps were longer or shorter. For this, open the project in the Edit mode, open Procedure Pane and change the number in line 5 of the **calculate** procedure (optional).

Page 2

On Page2, students are invited to the opposite Conversion: to convert the average KM distance Terry Fox did **each day** into the number of steps he did. The sequence of announcements explains how this number is calculated (We calculated this number by dividing Terry Fox'es average daily travel (42 kilometres) by the estimated length of his step (0,6 metre).

Students compare their number of steps entered on the first page with the number of steps Terry Fox did each day (no code, just conversation).

Nothing to code here. But hopefully some good discussions.

Page 3

It's a simple game. Students are invited to **estimate** the total number of steps Terry Fox did during his complete Marathon of Hope. They get all the numbers needed and have to set the Slider to the number of their guess.

We suggest that the teacher say: "Kids, how many steps do you think Terry Fox took during his complete run?" They shout out numbers. Teacher writes them on the Board and then invites kids to use math and logic to fine-tune the estimates.

Some students may want to play this game more than once, until they receive the correct number.

Curriculum Connections

Or here's the link: https://data.lynxcoding.org/help/en/TF_Curriculum_Connections.pdf

A Terry Fox Tribute

Required Technology:

Computer with internet access (for lynxcoding.club/)

Description:

To assist students with creating this application, a [starter project is provided](https://terry-fox-club-1.lynxcoding.club/share/Pzt6tw9c) (<https://terry-fox-club-1.lynxcoding.club/share/Pzt6tw9c>).

Students will follow the instructions on the activity cards to create an application that includes the following:

- Add a background for an animation;
- Code a Terry Fox character (turtle) to "run" across the page;
- Teach LYNX a new command by adding a procedure;
- Create a button launching the animation;
- Add a Canadian Flag;
- Add a description about the Marathon of Hope;
- Share the project with friends and family;
- If time permits, use text-to-speech and add clipart

Computer Programming Concepts Addressed:

- Sequential programming
- Repetition (loops)
- Understanding Inputs to the Commands
- Procedures
- Animation
- Clickable buttons
- Managing object characteristics
- Multimedia: Adding Clipart and Audio (optional)
- Text-to-speech (optional)

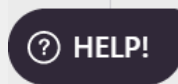
Curriculum Connections

Or here's the link: https://data.lynxcoding.org/help/en/TF_Curriculum_Connections.pdf

Common Errors and Debugging:

- **Spelling!** Make sure all primitives and commands are spelled correctly.
- If the Terry Fox character (turtle) is moving in the wrong direction, use the **setheading** (or **seth**) primitive to adjust the direction - look carefully at the compass image provided in the activity cards
- If an error message appears, look at the line number indicated and ensure the code in that line in the Procedures Pane is written exactly as shown in the activity cards;
- Read the comments (grey words that begin with a semicolon ;) provided in the starter application to understand the code

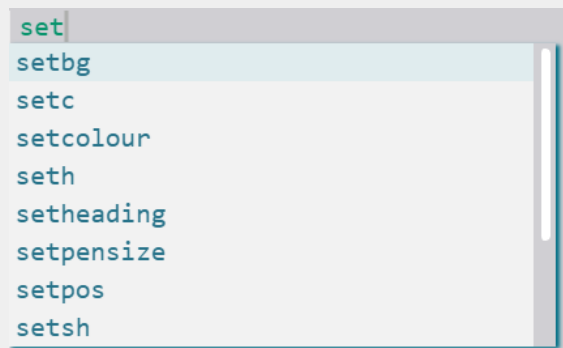
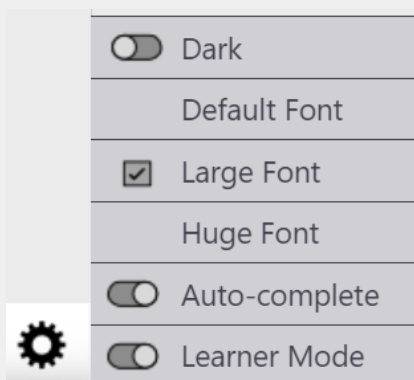
- Use the *Help* feature within LYNX



- Check out the *user guides* within LYNX
- If the student hovers the cursor over a primitive (e.g., **setcolour**), a tooltip will appear
- Ensure *Auto-complete* is ON so that LYNX can help to determine the primitives/command the student is trying to type. It is ON when the white circle is on the right side.



[LYNXCoding.club/Home/Help](https://lynxcoding.club/Home/Help)



Our team is here to help you. Let us know if you have any questions!