GUIDE DOGS

STEM Project

Inclusive city

Aim:

To create a smart tech solution to make cities more inclusive for people with a vision impairment

Objective:

- **Define the terms** 'inclusive or smart city', 'shared streets', 'talking buses' and describe the impact these have on people with sight loss.

- **Identify at least three activities a person with sight loss would find difficult** to carry out within a town or city.

- **Identify places in a city** that a person with sight loss would find difficult to locate or navigate.

- **Decide which of these problems you would like to focus your design on.**

- **Research tech solutions that have attempted to make cities more inclusive** for people with sight loss and consider if there are elements of this tech that you would incorporate into your design.

- **Create an evaluation framework to test your design's efficiency** – consider how effective it would be, the materials that would be used, its weight, portability, ease of use, how it could work alongside a guide dog and existing smart technology such as GPS and smart phones.

- **Design and make your tech solution.** A prototype could be made or a programme created and schematics designed or virtual testing of a virtual device or wearable tech

- **Test and improve the device**, making note of the versions that are created

- **Consider how easily the device could be manufactured** to meet the needs of 5000 current guide dog owners and the potential to support the further 180,000 people with a vision impairment who rarely leave home alone

- **Analyse possible costs.** Consider how these costs could be paid for. Currently guide dogs covers all costs of breeding, training and life time costs of a guide dog. Would you expect donors to support the funding and how would you encourage this?

- **Evaluate the device and the whole project** – what could be done differently? What went well?

- **Optional** – invite a Guide Dogs speaker to judge your devices. Email **speakers@guidedogs.org.uk**

www.guidedogs.org.uk

Structuring your STEM challenge

1. **Researching the problem** - why are towns and cities so difficult for people with sight loss to navigate? What have town planners done recently that has made this worse? What problems do you think your design could solve?

2. **Create a check list** to help make decisions and evaluate strengths and weaknesses. What are the criteria you need your device to meet?

3. **Choosing the best solution**

4. **Designing the device** or making a plan

5. **Making the device** – this could include prototypes, computer programmes, schematics, virtual run throughs and testing

6. **Testing** – does it work well, how could it be improved? Do you want to make another version?

7. **Getting it out there** – how much would the device cost? How could you raise funds to pay for it? How could you let people know about it? Who would you need to include in the planning and roll out of your device? How many would you need?

8. **Evaluating** (using your check list) – would the device work in the real world as well as a guide dog? What are its limitations? What are its strengths?