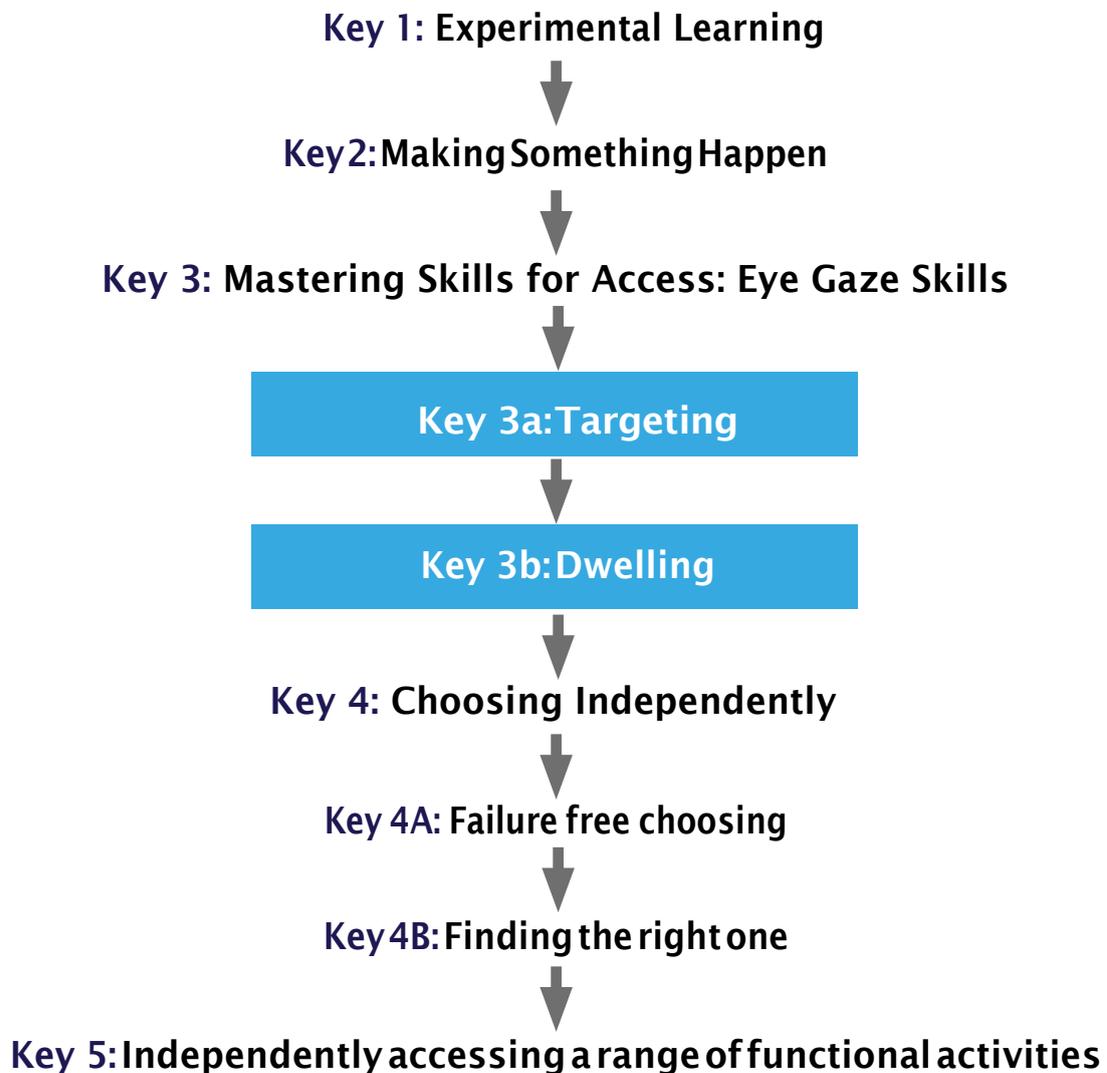


# Unlocking Abilities: Keys to Developing Eye Gaze Skills



## Adapted from;

Bean, Ian. (2011) Inclusive Technology, Learning Journeys: Switch Progression Road Map. Retrieved from <http://www.ianbean.co.uk>

Burkhart, L. (2012) Stepping Stones To Switch Access (Two Switch Step Scanning). Retrieved from <http://lindaburkhart.com>

Tobii Eye Gaze Learning Curve: A clear pathway to success with Eye Control and Gaze Interaction Retrieved October 7, 2016 from <http://www.tobiidynavox.com>

There are many cognitive and motor skills a student needs to learn before being able to use eye gaze for a range of everyday activities. Not all students may progress to using eye gaze for communication and computer access, however any progression in their eye gaze skills will improve their opportunities for active participation in learning and daily activities.

This is not a fixed progression; students may be in multiple stages at once and may need to take a step backwards at times to consolidate their skills.

## Key 1: Experimental Learning



This is about the student becoming comfortable with the device and engaging with an activity on the screen (looking, listening, and reacting). We want to look at games that provide a range of sensory experiences (sight, sound, movement, patterns). This stage may include modelling and incidental activation of the eye gaze device.

### Objectives

1. The student will tolerate eye gaze equipment being positioned near them.
2. The student will look, react or respond to an activity on the eye gaze device.

### Tip and Tricks

- Decrease environmental distractions. For early eye gaze access try to reduce any unnecessary sources of light and find a quiet location.
- Ensure the student is comfortable. An appropriate mount can be used, so that the student can access the screen in their most comfortable position; e.g. reclined.
- Observe where on the screen the student is looking on the screen. Do they have a tendency to always look to one half of the screen? Are there areas of the screen they appear to have difficulty accessing? Some software includes an analysis tool where you can review where the student was looking.
- Use games or videos with bright lights, sounds and favourite images.

### Activity Ideas

- See 'Software for Developing Eye Gaze Skills' Handout.

## Key 2: Making Something Happen

We want the student to learn that they are controlling the activity on the screen with their eye gaze (often referred to as 'cause and effect'). Be aware the student may have been exposed to lots of screens over their lifetime, but this is the first one that they control with their eyes. This is something new and possibly unexpected! It may take time for them to realise they are in control of the screen.



### Objectives

1. The student will independently use their eye gaze to produce a desired effect on the screen.

### Tips and Tricks

- Lots of repetition with moderate difference (a range of games) will be required at this stage for the student stay engaged and understand they are controlling the screen.
- Learn about the student's preferences. Which games do they react to the most? Are there any they look away from or avoid?

### Activity Ideas

- See 'Software for Developing Eye Gaze Skills' Handout.
- Use music games to participate in music classes or morning songs
- Use painting games to make art. Take a screen shot and display their work.

## Key 3: Mastering Skills for Access: Eye Gaze Specific Skills

### Key 3A: Targeting



We are teaching the student to track objects on the screen and use their eye gaze to reach targets.

#### Objectives

1. The student will independently locate targets on the screen using their eye gaze.

#### Tips and Tricks

- Initially use games that require the child to look at a large target on the screen to get a reaction or reward.



- Use images or games of interest to the child. Some software allows you to add in photos or pictures to customise targets.
- Use games that encourage the child to locate targets all over the screen.
- Decrease the size of targets on the screen as the student's skills improve

#### Activity Ideas

See 'Software for Developing Eye Gaze Skills' Handout.

## Key 3B: Dwelling

We are teaching the student to dwell (maintain their gaze) as a means for selecting targets.



### Objectives

1. The student will look at and dwell to select targets to produce a desired effect.

### Tips and Tricks

- Use images or games of interest to the child. Some software allows you to add in photos or pictures to customise targets.
- Start with games that require the student to maintain their gaze on a target for something to happen; e.g - where you have to maintain gaze at a video to keep it playing.
- Start out with a fairly short dwell time when introducing selecting using dwell. A good starting dwell time is 0.8 seconds. Adjust this as needed.

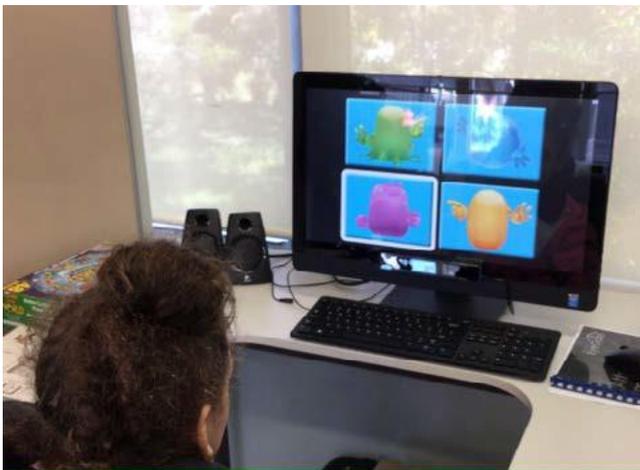
### Activity Ideas

See 'Software for Developing Eye Gaze Skills' Handout.

## Key 4: Choosing Independently

### Key 4A: Failure Free Choosing

We are now looking at introducing the student to the concept of choosing using eye gaze. At first we want to encourage the student to make choices without there being a wrong answer. Any option they choose is reinforced and rewarded.



#### Objectives

1. The student will choose one item from three or more on-screen options, where there is no correct answer and any choice is rewarded.

#### Tips and Tricks

- Many software programs have games designed to provide failure-free choosing
- Start with large targets and reduce their size as skills improve.

#### Activity Ideas

See 'Software for Developing Eye Gaze Skills' Handout.

## Key 4B: Finding the right one



This is about the student being able to select the option they want or being able to make a choice to answer a question. These skills can enable the child to communicate, have control over their environment and demonstrate their learning.

### Objectives

1. The student will choose one item from three or more on-screen options in regard to a request or question.

### Tips and Tricks

- Start out with concepts the student is familiar with to minimise the cognitive demands of the activity.
- Consider having some blank cells on the screen initially to make 'finding the right one' easier.

Increase the number of options the student has to choose from as their skills improve. Their motor, cognitive and visual skills need to be considered in providing an appropriate number of choices.

- Adjust the dwell time as appropriate for the student.
- Provide as many choices as they can manage. We do not want to unnecessarily limit what the student can choose from.

### Activity Ideas

- See 'Software for Developing Eye Gaze Skills' Handout.

## Key 5: Independently accessing a range of functional activities



By now the student has mastered the skills needed for them to start using eye gaze functionally, for whatever their goals are, whether this be communication, reading books, writing, taking photos, making phone calls or playing music.

### Objectives

1. The student will use eye gaze independently to participate in one or more functional activities (communication, computer access, educational activities, environmental control).

### Tips and Tricks

- You may still need to consider the size of targets on the screen to ensure the student's success in the functional activity.
- Customise software to enable the student to access the activities they want to do.
- Ensure all carers or support staff are confident in using the eye gaze device and troubleshooting any issues.

### Activity Ideas

- See 'Software for Developing Eye Gaze Skills' handout.

## References

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<http://www.tobiidynavox.com/eye-gaze-learning-curve/?hvid=2ABXnu>