

# Words With Kinect

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## Introduction

### Overview

Words with Kinect is an application that is intended to teach children english phonetics. The children interact with the application by playing games via the Microsoft Kinect. These games are based on the research of Dr. Donald Bear.

### Games

There are currently three games that are implemented in the application. These games teach the children the phonetic sounds of “long-A” and “short-A”. The three games that are implemented are: Matching, Word Sort, and Memory.

## Specifications

### Hardware

- Microsoft developer Kinect or Microsoft Xbox 360 Kinect
  - For best results we recommend the developer Kinect
- 32 bit or 64 bit processor
- Dual-core 2.66 GHz or faster processor
- Dedicated USB 2.0 bus
- 2 GB RAM<sup>1</sup>

### Software

- Windows 7 or Windows 8

## Users

### Ages 6-8

This application is intended to used by children ages 6-8. At this point in their academic development the children should be learning phonetic sounds of words.

### Ages 8+

This application can also be extended to help teach children and adults who are learning english as a second language how to read and write. The ability to plug-in modules makes the application very flexible.

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<sup>1</sup> These requirements are based on what is needed to run the kinect. For more information visit:  
[http://www.microsoft.com/en-us/kinectforwindows/purchase/sensor\\_setup.aspx](http://www.microsoft.com/en-us/kinectforwindows/purchase/sensor_setup.aspx)

# Input/Controls

## **Kinect**

The main source of input for this application is the Microsoft Kinect. With the Kinect the user is able to perform a variety of gestures to interface with the application. The Kinect tracks the movement of the users hand and depicts this hand as an animated hand in the application

### **Gestures**

#### Clicking

The user can perform a click with the Kinect by hovering their hand over an object and then slowly moving their hand forward. This will cause the Kinect hand to slowly fill purple. When the hand is all the way fill this denotes a click operation. This click is the same click that can be performed by a mouse.

#### Grabbing

The user can perform a grab gesture by moving their hand so that it is over an object. Once over an object the user can perform a grab by making a fist with their hand. The animated hand will also make a fist if the grab is successful. The user can release the grab by unclenching their fist. The animated hand will return to normal when this is successful.

#### Dragging

The user can perform a drag operation by grabbing a control and then moving their hand around the screen. The object will continue to follow the users hand until the user releases the grab.

## **Mouse**

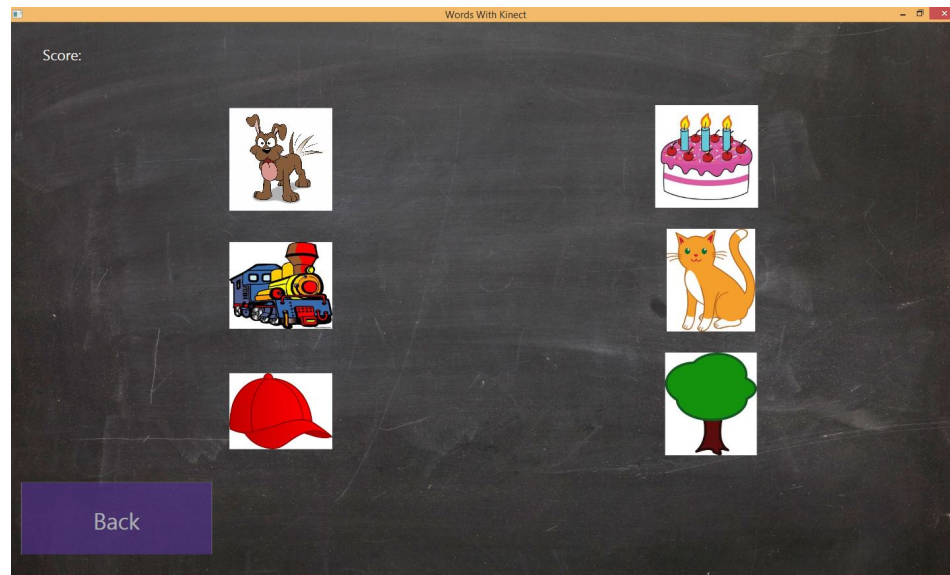
The user may also use the mouse to interact with the application. Note, while many of the features will still work with the mouse there are features that are Kinect exclusive including the grabbing and dragging features. For this reason it is recommended that the Kinect be used.

# Games

## Matching Game

### Introduction

The Matching game consists of two columns that have pictures in them (see screen shot below). The object of this game is to draw a line between pictures that have the same phonetic sound. There is a match for “long-A”, “short-A”, and oddball.



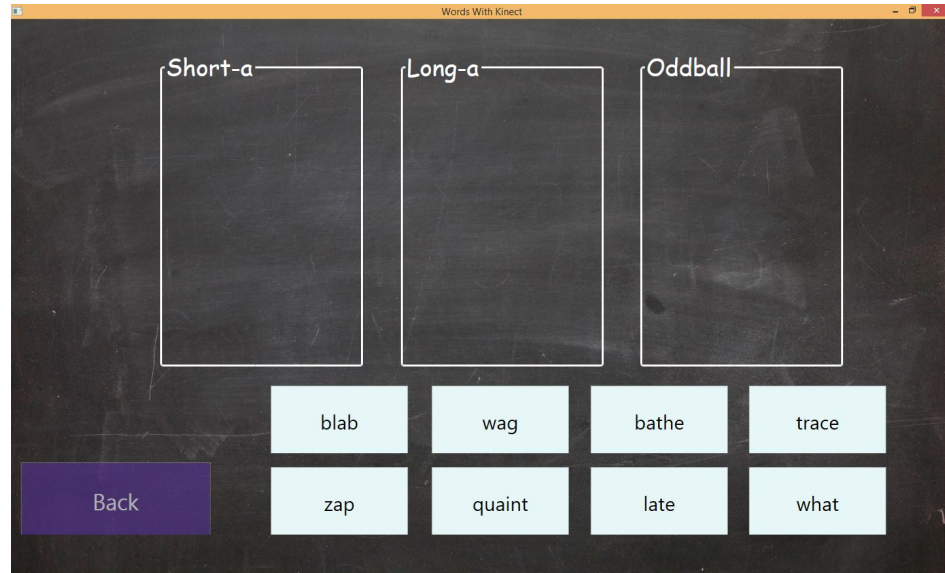
### GamePlay

The user starts by selecting a picture in the left hand column. This is done by “clicking” on a picture. The user then clicks on a picture in the right column. If the pictures have similar phonetic sounds then the user gets points and a line is drawn between the two pictures. If a user is incorrect, points are taken from their score and no line is drawn.

## Word Sort Game

### Introduction

The Word Sort game has three columns that represent three different phonetic sounds. The user also has a bank of words at the bottom of the screen. The job of the user is to drag a word into the correct column to earn points.



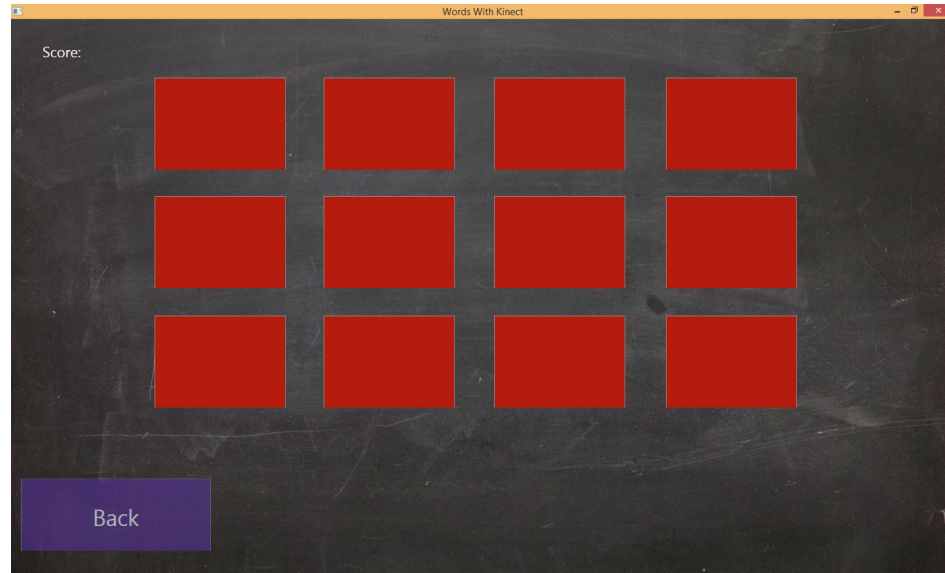
### Game Play

The user will select a tile on the bottom of the screen by using the grab technique. The user will then drag the word to the appropriate column and release the grab. Once in the correct column the user will click on the tile to verify that it is in the correct position. If the user was correct then the column will light up green, the tile will disappear and the user will get points. If the user was incorrect then the column will light up red and the tile will stay in place and wait to be moved to the correct position.

### Memory Game

#### Introduction

This game is laid out in the familiar memory fashion. The object of the game is for the user to find two cards that have the same phonetic sound.

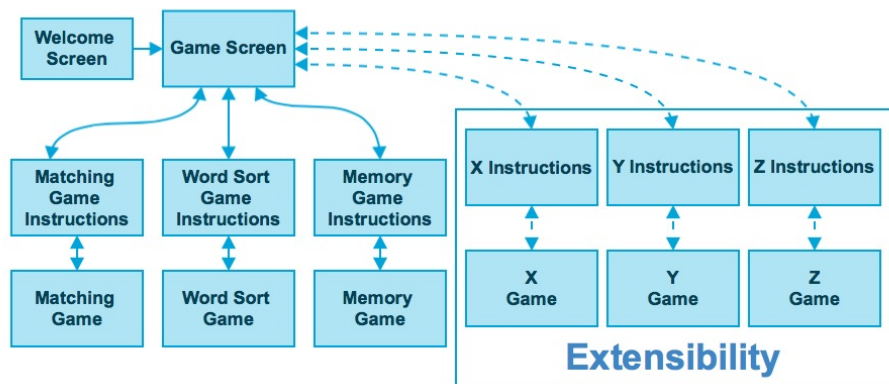


### Gameplay

The user will flip a card over by clicking on one of the red tiles. The user will then flip over another card by clicking on a separate tile. If the two cards that are flipped over have the same phonetic sound then the user will get points and the cards will stay blue. If the user is incorrect the cards will remain face up for a short amount of time and then flip back over.

### Screenflow

Below is the screen flow diagram that shows how to navigate the application.



## Words With Kinect Voice Commands List

<b>Words With Kinect Voice Commands List</b>	
<b>If you want to...</b>	<b>Say this...</b>
<b>ENABLE NEAR MODE</b>	enable near mode
	please enable near mode
<b>DISABLE NEAR MODE</b>	disable near mode
	please disable near mode
<b>START</b>	lets start
	please start
	computer start
<b>GO BACK</b>	lets go back
	computer go back
<b>START MEMORY GAME</b>	computer start Memory game
	lets start Memory game
	lets play Memory game
	computer start Memory
<b>START MATCHING GAME</b>	computer start matching
	lets start matching game
	lets play matching game
	computer start matching game
<b>START WORD SORT GAME</b>	computer start word sort game
	lets start word sort game
	lets play word sort game
	computer start word sort

## Contact

Please direct any questions or comments to: [chimera.isu@gmail.com](mailto:chimera.isu@gmail.com)

