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ABSTRACT

An educational device for visually modeling words or numerals, the device including a plurality of display zones and a plurality of icons, each icon being movable between a non display position and a display zone, whereby when the device is used to represent a word, the number of display zones having an icon therein corresponds to the number of phonemes in the word and the number of icons in a respective display zone represents the number of letters in a respective phoneme and when the device visually represents a number, each display zone having an icon therein represents a unit from which the number is formed, and the number of icons in a respective display zone can represent the relative size of a respective unit.



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COMPLETE SPECIFICATION
FOR A STANDARD PATENT

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Invention Title: AN EDUCATIONAL DEVICE

The following statement is a full description of this invention, including the best method of performing it known to me:

THIS INVENTION relates to an educational device and method which can be used to visually represent word sounds and/or numerical values.

5 When people are learning to read and write, it is necessary for them to be able to relate the letters from which a word is spelt to the pronunciation of the word. When attempting to spell or to pronounce a new word, a student typically breaks the word into the different syllables and phenomes from which the word is made.

10 Visual representation of the component sounds of a word has been used to assist in literacy teaching. Examples of these are cards representing different syllables. A number of cards can be used to construct a word. However, large numbers of cards are required. Should one or more key cards representing common sounds be lost, the card set is rendered virtually useless.

15 Visual representation has also been used as an aid to teaching numeracy. An example of a known device for teaching numeracy are number boards in which numbers from 1 to 100 are represented in a 10 x 10 array.

20 A difficulty with the earlier methods and devices for visual display is that they tend to be complicated and difficult to use. In many cases, they are designed for use only by an instructor and are unsuitable for "hands on" use. Often, it is difficult to hold a student's attention, and in particular, that of a young child, with such devices.

25 It is therefore an object of the present invention to provide an educational method and device which may at least partially overcome the above disadvantages or provide the public with a useful choice.

30 According to a first broad form of the invention, there is provided an educational device for visually modeling words or numerals, the device including a plurality of display zones and a plurality of icons, each icon being moveable between a non display position and a display zone, whereby when the device is used to represent a word, the number of display zones having an icon therein corresponds to the number of phonemes in the word and the number of icons in a respective display zone represents the number of letters in a respective phoneme and when the device visually represents a number,

each display zone having an icon therein represents a unit from which the number is formed, and the number of icons in a respective display zone can represent the relative size of a respective unit.

The device of the present invention includes a plurality of display
 5 zones which may a number of icons. The number of display zones is not critical and may be selected according to, for example, the complexity of the words to be taught. As the device includes a display zone for each phoneme, a device having a large number of display zones can be used to represent complex words or phrases. A device of this type can be used for more
 10 advanced students. Beginning readers which may be learning only simple words may use a device having a smaller number of display zones.

Typically, a display zone can display from zero to 10 icons. Generally, only those zones displaying an icon represent a phoneme. In this way a device having for example, ten display zones can be used to represent
 15 words of between 1 and 10 phonemes. Alternatively, the device can represent two or more words in which the display zones having zero icons can represent the spacing between words.

The icons are moveable between a display zone and a non display position. Typically the icons are three dimensional bodies which can
 20 be manually moved between positions. Typically the icons are of a size and shape which are attractive to children. Typically, the display zone is formed from a vertical rod, upon which icons may be slidably mounted. In this way, the icons can slide along the rod between the display and non display positions. In one form of the invention, the device may include a series of
 25 spikes upon which the icons can be inserted and removed.

In a preferred form of the invention, each display zone has a storage zone associated therewith such that icons may readily be transferred between the display and storage zones. An example of such an arrangement
 30 is where the display zone includes an inverted U shaped rod having a dividing partition located between the two arms of the rod. The storage position may be on the reverse side of the dividing partition.

Some words may also include silent letters and/or punctuation marks. In a preferred form of the invention, the device further includes a



second set of display zones which can be used to visually represent the silent features of a word. Typically, the device includes the phoneme display zones in an alternating arrangement with the silent display zones. Icons which can represent a silent letter or a particular punctuation mark can be placed within the silent display zones as necessary.

One or more phonemes can be linked to form syllables. In a further preferred embodiment of the invention, the device further includes means for visually linking those groups of phonemes which form the syllables of a word.

In a further form of the invention, the device further includes means by which the letters or numerals represented by a respective icon can be written adjacent a respective display zone. Suitably, the device may include a blackboard or whiteboard mounted beneath the display zone.

Alternatively, the device may be represented on a video display and the icons can be manipulated by electronic control.

According to a further broad form of the invention there is provided a method of modeling words, the method including breaking a word into the phonemes from which the word is formed, visually representing each phoneme as a discrete collection of at least one icon, whereby the number of icons in each collection corresponds to the number of letters in each phoneme.

By way of example only, the present invention will be described with reference to the accompanying figures in which

Figure 1 is a perspective view of a preferred device of the present invention;

Figure 2 is a front view of the device of Figure 1 in which the words "CAN'T TODAY" has been modeled;

Figure 3 represents the device of Figure 1 in which the two words "AISLE" and "THROUGH" have been represented; and

Figure 4 illustrates the device of Figure 1 in which the words "COME" and "CHURCH" have been represented and

Figure 5 illustrates the device of Figure 5 in which the number 352.4 has represented.

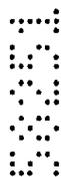


Figure 1 illustrates a preferred device 11 of the present invention. The device includes a frame and a carry handle 12. At the base of the device is a recess 13 for holding pens or pencils. The device has a series of parallel of inverted U shaped rods 15. The opposing arms of the rods 15 are separated by a screen 16. Each rod 15 has a number of balls 17 slidably mounted thereon. The balls are moveable between a hidden storage position behind the screen 16 and a display position in front of the screen. Alternating rods have balls 17 of alternating colors mounted thereon.

When the device is used to represent a word, each rod represents a phoneme. Each ball 15 on a rod represents a letter of the phoneme.

The screen 16 also includes a number of apertures 18 which alternate between the rods 15. A second set of balls 19 which have a projecting pin can be mounted to the screen via these apertures by frictional engagement between the pin and the apertures 18. The second set is of a contrasting color to the first set of balls. This second set of balls are of a contrasting color to balls 17. Some balls are unmarked, whereas others have visual representations of punctuation marks or decimal points.

The device further includes a whiteboard 20 located below the base of the rods 15.

Figure 2 illustrates the device of Figure 1 in use and which has been manipulated to display the words "CAN'T" and "TODAY". Each phoneme, C; A; N and T is represented by a different rod 15. As each phoneme only has a single letter, only a single ball is in the display position. The remaining unused balls are located behind screen 16. In the word "TODAY", the phonemes T; O and D are each represented by a single ball. The phoneme AY, having two letters is represented by two balls.

In Figure 3, the device illustrates the word "AISLE". "AISLE" has only two phonemes which are again represented by single balls on respective rods. The word "AISLE" also includes three silent letters. The silent letters are represented by the balls of contrasting color which have been mounted in the apertures. It can be seen that it is readily apparent that the word "AISLE" has only two phonemes and the remaining letters are silent.



Figure 3 also illustrates how the word "THROUGH" can be represented to show that there are three phonemes, the phonemes having two, one and four letters respectively.

In Figure 4, the device represents the words "COME" and "CHURCH". Again, it can be seen that the arrangement of the balls provides a clear visual indication as to the number of phonemes, the number of silent letters, and the number of letters which make up each phoneme.

The device may further include means for separating the phonemes rods to indicate syllables. The device may include a set of syllable markers which can extend across one to six rods. The syllable markers can be magnetic so that they can magnetically attach to the rods as required.

The device of the present invention may also be used to illustrate numeracy values. Each rod, instead of representing a single phoneme, could represent a respective unit such as 10s, 100s, or 1000s. The number of balls on a particular rod could be used to represent the value of a particular unit. The contrasting color balls used to represent silent letters may instead be used to represent decimal points. Figure 5 illustrates the device of Figure 5 being used to represent the number 352.4.

It can be seen that the device of the present invention can provide an interactive focal point for instruction. It allows children to make a model of the spoken word broken into phonemes, to choose a letter or letters to match a sound, to record the choice of spelling and judge its correctness. The written response on the white board and the ball groupings are able to be changed quickly.

The device also provides the student with a place to "keep" the sounds he or she may think of when attempting to spell a word. This allows the student to focus on choice of letters while a sound is being held by the balls. The device may assist in guiding a student to reflect on sounds within a word, to voice sounds, to match sounds to respective rods and then the letters, and to apply the rules of spelling. Further, the device of the present invention is able to be manipulated quickly and easily to change the words which are being represented.

It will be appreciated that various modifications may be made to



the embodiments described and claimed herein, without departing from the spirit and scope of the invention.



THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. An educational device for visually modeling words or numerals, the device including a plurality of display zones and a plurality of icons, each icon being movable between a non display position and a display zone, whereby when the device is used to represent a word, the number of display zones having an icon therein corresponds to the number of phonemes in the word and the number of icons in a respective display zone represents the number of letters in a respective phoneme and when the device visually represents a number, each display zone having an icon therein represents a unit from which the number is formed, and the number of icons in a respective display zone can represent the relative size of a respective unit.
2. The device of claim 1 which further includes a second set of display zones and a second set of icons, movable between a non display position and a said second display zone, wherein the second set of icons can be used to represent silent letters, punctuation marks or decimal points.
3. The device of claim 1 or claim 2, wherein the display zones include a vertical rod upon which icons are slidably mounted.
4. The device of claim 3, wherein the display zone includes an inverted U-shaped rod and the device includes a partition located between the arms of the U-shaped rod.
5. The device of any one of claims 1 to 4 which includes a second set of display zones which when the device is used to represent a word can represent a silent letter or punctuation mark.
6. The device of any one of claims 1 to 5 which includes means for visually linking a group of respective display zones representing those phonemes which form a syllable of a word.
7. An educational device substantially as hereinbefore described with reference to the Figures.
8. A method of modeling words, the method including breaking a word into the phonemes from which the word is formed, visually representing each phonemes as a discrete collection of at least one icon, whereby the



number of icons in each collection corresponds to the number of letters in each phoneme.

5

DATED this 3rd day of November 1999

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By her Patent Attorneys

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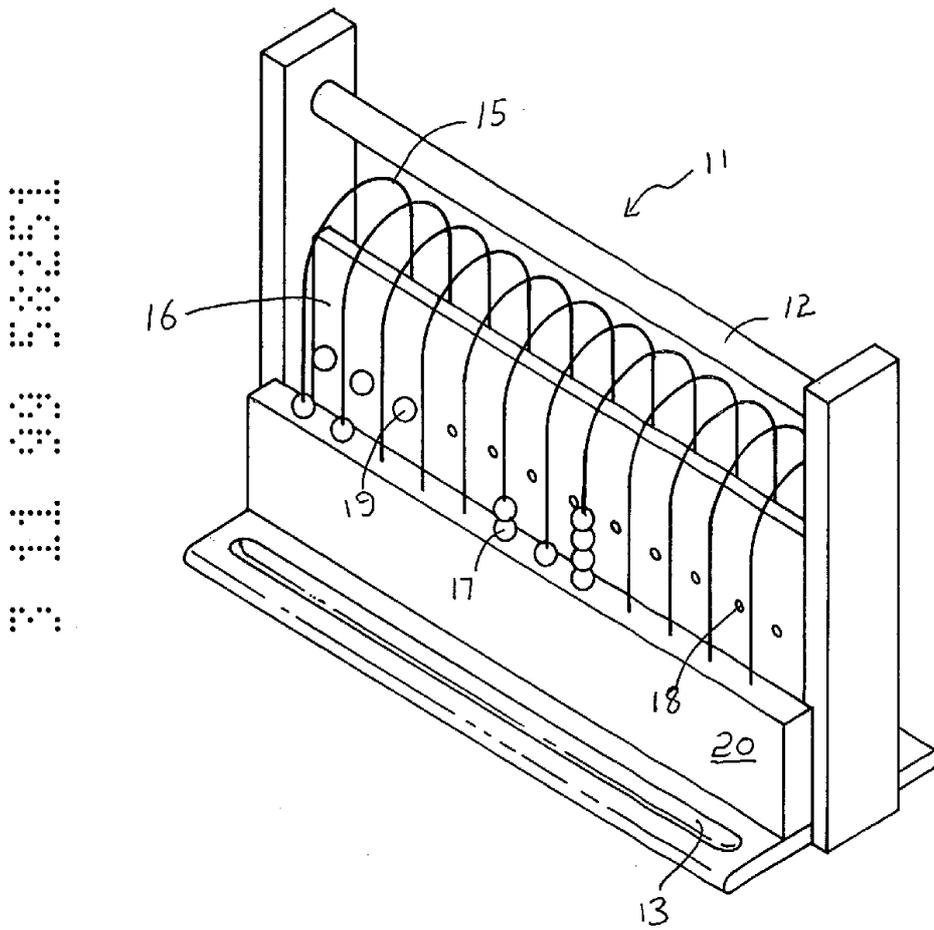


Figure 1

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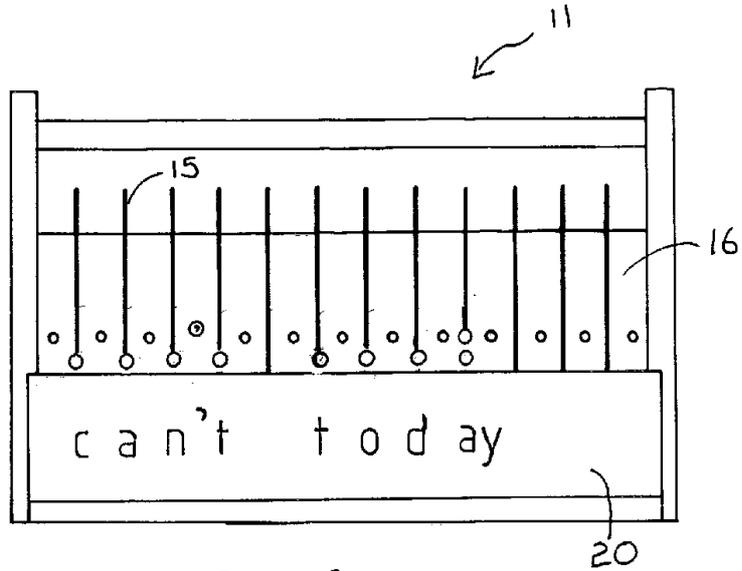


Figure 2

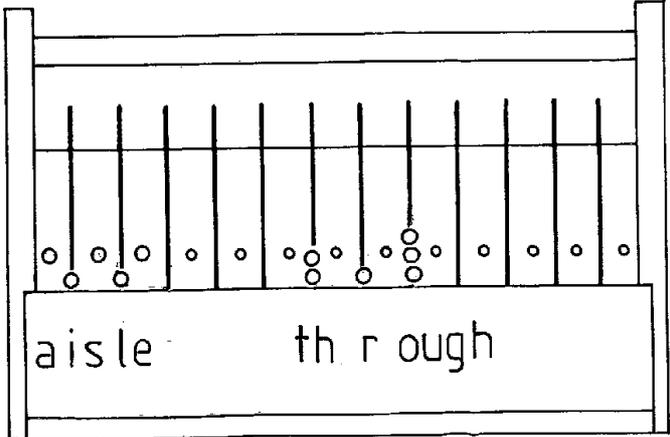


Figure 3

3/3

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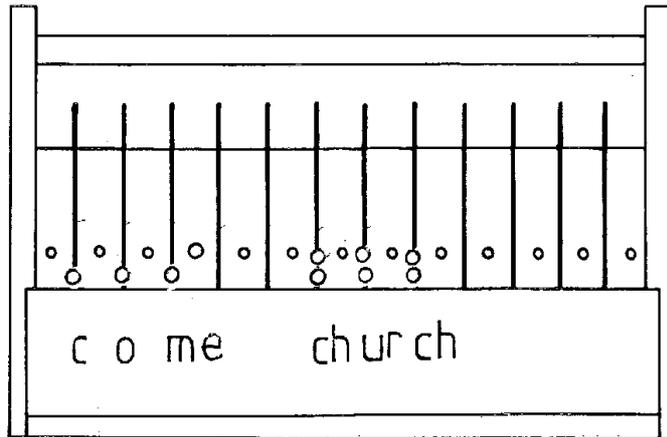


Figure 4

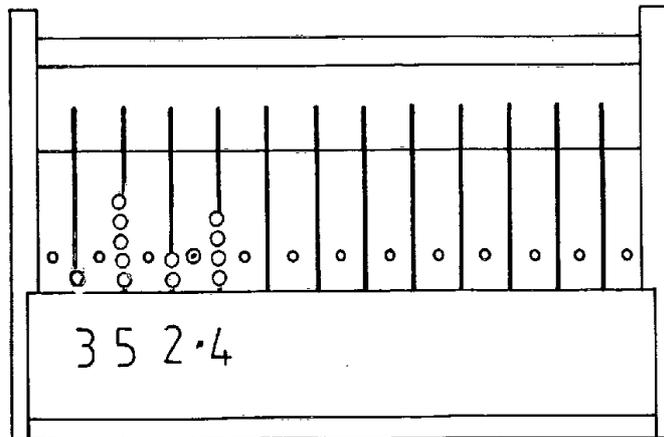


Figure 5