Intended Audience

The intended audience for this unit of instruction is seventh grade students. The unit can be paced for all learning levels, from remedial levels to advanced levels of students. Even though the author created many examples and illustrations after referencing the textbook he utilizes, this website is very universal and can supplement any curriculum or textbook that is utilized in a middle grades mathematics classroom.

Graphic Descriptions

**Simple Events**—When beginning a probability unit, many seventh grade students already have a basic understanding of simple events, therefore, there does not need to be a lot of typed information on it. Most students only need a visual reminder of simple events. Lohr (2007) often states the importance of repetition in graphics. Repetition makes connections and relationships among objects more clearly to the learner. The repetition of the arrows lets the students know only certain things can happen in a given situation. Proximity and spacing of objects also establishes connections in a learner’s mind, according to Lohr (2007). The proximity of the outcomes to the event help the students understand exactly which outcomes are possible for that situation, while the spacing between the events can also help establish independence of events later on.

**Disjoint Events**—This image will work because the marble bag brings closure to the image because the individual marbles create the whole image of what's inside the bag. The concept of disjoint events flows from one step to the next because of the vertical hierarchy that is established. The C.A.R.P principles that are outlined by Lohr (2007) are also very apparent in this image.

**Fundamental Counting Principle**—This image will work because there is a good balance between the figure and ground as Lohr (2007) suggests on page 108. By placing pictures and
large numbers in the middle of the image, the eyes of the users gravitate to the middle of the image. Lohr (2007) also suggests on page 111 that the use of color can contrast important information to the user. This was incorporated by making the multiplication signs, the word 'multiplying', and the product in a very contrasting red color that emphasizing that multiplication is the operation that should be used.

**Compound Events**—This image will work because I have used C.A.R.P. principles as Lohr (2007) suggests throughout the entire book in many different contexts. The writing contrasts well with the background, there is repetition with the images that were used, I aligned the images and text, and related parts (ex. the possible outcomes) are in close proximity to each other. I also think that the image is appealing because of the added depth using the drop shadow as Lohr (2007) suggests on page 272.

**Independent Events**—This image also makes use of contrast so that the reader can find the presented information easier. The drop shadow was used to add appealing depth to the image as suggested by Lohr (2007). Other C.A.R.P. principles are clearly used to suggest relationships.

**Dependent Events**—The relationship between this image and the previous image are obvious. I used a repeated theme for these images to stress their similarities. The extra information in this image was included to show how the deck of cards is different when the second card is pulled.

**Permutations**—This image will work because the different colors separate the different situations yet they create a whole image that enhances the gestalt (Lohr, 2007). The backgrounds and images are in color for aesthetic purposes because of the preference to black and white images as stated by Lohr (2007). While each situation is different, the box in the middle touches each section, and thus promotes the idea that they are related to a central idea.

**Combinations**—This design will work because the steps are organized in a way that is logical to the viewer because the steps go in order from left to right like readings in the Western world, a horizontal hierarchy that Lohr (2007) suggests using. I also used separate colors as contrast to chunk related parts of the problem together, another suggestion that Lohr (2007) emphasizes.

**Calculator**—This calculator was chosen because of its popularity among schools for use on achievement testing and day-to-day use in the classroom. Throughout the image, there is a repetition of colors, contrast of colors and consistent alignment to differentiate between headings and steps. The use of shapes emphasizes important keys that are consistently used for inputting fractions, something that is often done for probability problems. Learners would likely initiate their focus on the circular magnifying glass which draws attention to the three main buttons, the 2^{nd} key, the A_b/c key, and the PRB key, that are used when working with fractions on this calculator.
According to Smith and Ragan (2005), instructional design is “the systematic…process of translating principles of learning and instruction into plans for instructional materials.” The website for this unit is very systematic in nature as each lesson was numbered to indicate the chronology in which the units should be examined. Learners should have a working understanding of the current topic prior to moving on to the next. The last two lessons are geared towards advanced learners who master each of the previous topics and desire enrichment. Each page was created with Adobe Dreamweaver CS5. Coding advice was referenced from the two main sources: The Missing Manual: Adobe Dreamweaver CS5 by David McFarland and HTML, XHTML, & CSS by Elizabeth Castro.

The layout of the pages is very simple. According to Williams and Tollett (2006), simple layouts are encouraged so that people navigating the websites avoid confusion. Each page has a banner at the top, which lists the lessons by number. Also, along the left side are the resources for the unit so that they can be accessed by the teacher (or student, if desired) from any page very quickly. I chose a CSS styling that eliminated the need for horizontal scrolling for most display settings (Williams & Tollett, 2006). For lessons that include a detailed lesson plan, there is also a link to that plan at the bottom of the lesson.

Graphics included on each pages were created by a one of two imaging programs: SMART Notebook, developed by SMART Technologies and Adobe Fireworks CS5, developed by Adobe Systems Incorporated. Many design principles and actions were taken from Creating Graphics for Learning and Performance by Linda Lohr.

Teachers may choose to use the website as a supplement to their lessons or allow students to work on required topics at their own pace and reference other sources as needed. It is still recommended by the author that lessons be covered in the order in which they are arranged and students should master each concept prior to moving on to the next.

References


