Analogies for Memory and Remembering

Storing a memory is a process of imprinting a pattern on the brain. This pattern is referred to as a “memory trace” or ‘engram”. The imprinting process requires either a) the repetition of a minor event or b) a single event of significant impact.

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|  | Think of a field of grass as your brain and a memory as a clear pathway through the field. If the event is a person walking through the field we would not get a clear path if the person only walked through the field once. |

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| If the person repeatedly walked in the same way through the field, a path would be created. This path is the memory. Alternatively, if a four wheeler tears its way across the field a path could be formed after a single event. |  |

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| Now change to analogy from a path through a field to an electrical discharge through moist air. The single path pattern as portrayed by the lightning bolt becomes a more complex path and better resembles the activity in the brain. | C:\Users\raywilliams\Pictures\Clip Art\Cropped bolt.png |
|  | In this photo the multiple paths of varying shapes, sizes and intensities, provide a better idea of what the patterns look like when thousands of neurons fire simultaneously in the brain. The complex branches in the pattern represent neurons in many parts of the brain (visual, auditory, olfactory, tactile, etc) is what a single memory might look like. |

Retrieving the memory is like trying to find the path. The less intense the process that creates a path (you walking across a field once) or the less complex the path (a single arc of electricity) the more difficult it is to find the path once the event that created it is over. The more intense the process (you walking many times OR the four wheeler tearing up the field) the easier it is to find the path. Also, the more complex the pattern of the path is, the greater your chances of finding your way onto a branch of the pattern and thereby discovering the entire pathway. This last part helps us explain why a memory that is saved in several parts of the brain is more likely to be remembered than one that is stored in only a few parts of the brain.