

1125-F5-1956 **Ricardo V Teixeira*** (teixeirar@uhv.edu), 615 newhaven, Victoria, TX 77904. *Exemplifying Mathematical Concepts through Magic Tricks.*

World-famous magicians perform acts heavily based on mathematical concepts, but rarely do the explanations get proper attention. By learning the reasons why certain tricks work, students (and educators) will see fun aspects of mathematics. There might be several areas of mathematics involved in magic. In this talk, we will cover tricks whose explanations involve: error detection methods, binary and ternary number systems, cyclic groups, divisibility rules, and more. In information theory, error detection is a technique that enables reliable delivery of digital data over unreliable communication channels. A magic trick will exemplify this technique with redundant information on “magical cards”. Binary and ternary number systems are positional notation systems with base 2 and 3. An easy trick with binary cards and a more elaborated trick with cards from a normal deck will show how they can relate to magic. In algebra, a cyclic group is a group that is generated by a single element. We use that each suit has 13 cards, and 13 is a prime number, to create a cyclic group with cards that will allow us to perform a great act. Finally, if time permits, we will also relate divisibility rules, arithmetic operations, probability and more, in our presentation. (Received September 19, 2016)