

## Even Handed

Give a student a nickel and a dime. Tell them that the nickel will be worth 5 and the dime will be worth 10. The student hides one of the coins in their left and the other one in their right hand. After some calculation you can tell which hand each coin is in.

**Step 1.** Give a student 1 nickel and 1 dime. Ask the student to hide one of the coins in their left and the other one in their right hand without you seeing them do this.

**Step 2:** Ask the student to select any EVEN number more than 10 they want. Have them multiply that digit by the value of the coin in their LEFT hand. Remind them to remember the answer to the product or write it down.

**Step 3:** Ask the student to select any ODD number more than 11 they want. Have them multiply that digit by the value of the coin in their right hand. Remind them to remember the answer to the product or write it down.

**Step 4:** Ask them to add those two numbers they just calculated.

**Step 5:** Ask them to tell you if their number ends in an even number or an odd number.

AN EVEN number times the LEFT and an Odd number times the RIGHT.

If their number ends in an EVEN digit then the nickel is in their RIGHT Hand.

If their number ends in an ODD digit then the nickel is in their LEFT Hand.

### Example:

Step 1: They put the nickel in their LEFT hand and the Dime in their RIGHT hand.

Step 2:  $12 * 10 = 120$

Step 3:  $15 * 5 = 75$

Step 4:  $120 + 75 = 195$

Step 5: Ends in Odd

The teacher says "you have a nickel in your LEFT hand and the Dime in your RIGHT hand."

### Extension.

Give a student a penny, a nickel and a quarter. Tell them that the penny is worth 1, the nickel is worth 5 and the quarter is worth 25. The student hides one of the coins in their left and the other TWO in their right hand. After some calculation you can tell which hand the penny is in.

If their number ends in an EVEN digit then the penny is in their LEFT Hand.

If their number ends in an ODD digit then the penny is in their RIGHT Hand.

## How does this work?

This is a great trick to introduce the addition and multiplication of even and odd numbers.

### Basic Facts;

An **ODD** number **times** an **ODD** number is an **ODD** number.  $O * O = O$

An **ODD** number **times** an **EVEN** number is an **ODD** number.  $O * E = O$  and  $E * O = O$

An **EVEN** number **times** an **EVEN** number is an **even** number.  $E * E = E$

An **EVEN** number **plus** an **EVEN** number is an **EVEN** number.  $E + E = E$

An **EVEN** number **plus** an **ODD** number is an **ODD** number.  $E + O = O$

**The trick:** AN EVEN number times the LEFT and an Odd number times the RIGHT.

### If the Right hand has the ODD coin the math returns an odd number

LEFT HAND \* even number + RIGHT HAND \* odd number  
even coin                                  odd coin

=  $E * E + O * O = E + O =$  Odd in right and even in the left

### If the Left hand has the ODD coin the math returns an odd number

LEFT HAND \* even number + RIGHT HAND \* odd number  
odd coin                                  even coin

=  $O * E + E * O = E + E =$  Even in right and odd in the left

If their number ends in an EVEN digit then the nickel is in their RIGHT Hand.

If their number ends in an ODD digit then the nickel is in their LEFT Hand.