

# Test of understanding

Use the single strand of DNA below as a template.

–Replicate the DNA strand

–Use the new DNA strand as a template to transcribe mRNA

–Translate the mRNA strand into an amino acid sequence using the codon dictionary.

## Original

**DNA ATGTTCTGGCCAATACGGCATACTA**

## Replicate

**DNA**

## Transcribe

**mRNA**

## Translate

**AA**

Mutagens-

What are factors in the environment that cause mutations to occur?

Radiation

Chemical

Using the same DNA template strand, how does the amino acid sequence change if there is a point mutation?

**DNA ATGTTCGGCCAATACGGC****GTACTA**



Original sequence

Met - Phe - Gly - Gln - Tyr - Gly - Ile - Leu

Mutated sequence

Met - Phe - Gly - Gln - Tyr - Gly - **Val** - Leu

There is a change in the amino acid \_\_\_\_\_

Using the same DNA template strand, how does the amino acid sequence change if there is an addition mutation?

There is a change in the amino acid \_\_\_\_\_

Using the same DNA template strand, how does the amino acid sequence change if there is a frame shift mutation?

**DNA ATGTTCGGCCAATAC****GG** **TACTA**



2 base mutation

Original sequence

Met - Phe - Gly - Gln - Tyr - Gly - Ile - Leu

Mutated sequence

Met - Phe - Gly - Gln - Tyr - **Gly** - **Thr** - **none**

There is a change in the amino acid \_\_\_\_\_