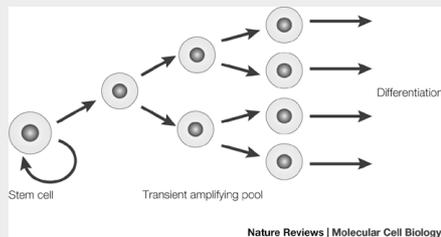


### Cell Cycle

Zygote Grows until large enough for cell division, it divides into **Progeny Cells**

Progeny Cell    Cell Growth    Cell Division

### Sequence of Cell Division



### Cell Cycle Before Mitosis

Growth 1

Replication Phase

Growth 2

Now ready for Mitosis

### Growth 1

Longest Phase

Most growth in cell size

### Replication

DNA in cell nucleus are copied

2 Identical sets of DNA

### Growth 2

Cell keeps growing

Until Ready for Mitosis

### Interphase

Growth 1, Replication Phase, Growth 2

These 3 stages together are referred to as

### Interphase

### Mitosis

Mitosis is cell division that produces genetically identical cells

### Chromosomes

DNA molecules attached to proteins structures

### DNA

Interphase    DNA is long thin strands

Mitosis    DNA tightly coiled chromosomes become more visible

### Glossary

**Autosomes**    Chromosomes other than a sex chromosome

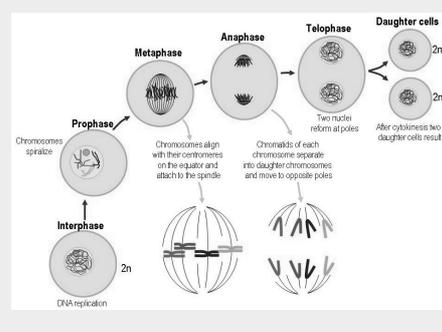
**Diploid**    Diploid cells where autosomes have a partners

**Centromere**    Point of attachment of replicated chromosomes

**Chromatids**    Replicated DNA pair

**Cytoplasm**    Cytoplasm is a thick solution that fills each cell and is enclosed by the cell membrane

### Mitosis Picture



### Mitosis 4 Divisions

Prophase

Metaphase

Anaphase

Telophase

### Think PMAT for Mitosis Stages

**Chromatids are double the number of chromosomes**

46 chromosomes for humans

23 pairs of chromosomes for humans

46 Chromatids at start of mitosis

### Prophase

Membrane surrounding Chromosomes disappears

Cell no longer has a nucleus

Chromosomes have identical Chromatids joined at centromere

### Metaphase

Chromosomes line up along the middle of the cell

Become attached by centromeres

By spindle fibres

### Anaphase

Chromatids now separate

Spindles pull chromatids to opposite ends of the cell

Chromatids are now chromosomes

### Telophase

Chromosomes at opposite ends uncoil

Nuclear envelope forms around each group

Two Nuclei

Cytoplasm Divides

Now 2 Daughter cells

Genetically Identical

Daughter cells start the Cell cycle