**Grade 9 Science -Meiosis Yarn Assignment**

**Outcome 1-05 (20 marks) Outcome 1-06 (8 marks)**

**Due Date:**

Objective: To demonstrate an understanding of the process of meiosis by making a model of the process using yarn to represent the chromosomes.

Materials: 4 strands of different colours of yarn/pipe cleaner etc.

4 pieces of blank paper

Tape, Scissors, White glue

Coloured pencils

Procedure:

1. Pick up the 4 pieces of paper and 4 strands of yarn.
2. Tape the four pieces of paper together with the longer edges along the bottom, using the tape as hinges.
3. Draw two of the phases from pages 48 & 49 of SciencePower 9 on each page

(Do **NOT** draw the red and blue chromosomes – they will go in later), being sure to put the **name of the phase** below each drawing, and the titles **Meiosis I** and **Meiosis II** at the top.

1. **Under** each phase name, using bullets, write one or two key points of that phase. **Do not copy** what is in the textbook, but summarize the key points **in your own words.**
2. Pick up 4 strands of yarn.
3. Cut each strand of yarn into 16 equal pieces. Leave four of the pieces as single strands and tie the others together in pairs.
4. Choose two of the colours of yarn to represent the smaller chromosomes and cut them down to the same size. Even out the other two colours of yarn to represent the larger chromosomes.
5. Attach the yarn to the paper with white glue to make your papers look like the diagram in the textbook (p 48&49).
6. Label the following **ONCE** only on your diagrams: **centromere, centriole, spindle fibres, haploid cell, diploid cell, , gamete, nuclear membrane, chromatid, chromosome, and homologous pair.**
7. Staple or tape the scoring rubric to the front of your assignment, with your name and class filled in, and hand it in.

**Rubric: Grade 9 Science -Meiosis Yarn Outcome: 1-05**

**(28 marks)**

**Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Class: \_\_\_\_\_\_\_\_\_ Mark: /28**

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| **Criteria for Part I** | 1 mark | 2 marks | 3 marks | 4 marks |
| 1. Labels are present and used correctly:   centromere, centriole, spindle fibres,  haploid cell, & diploid cell. |  |  |  |  |
| 1. Labels are present and used correctly:   gamete, nuclear membrane, chromatid,  chromosome, & homologous pair. |  |  |  |  |
| 1. Diagrams have the correct colours of   yarn following logically in sequence. |  |  |  |  |
| 1. Key points stated clearly in bullets for   each phase. |  |  |  |  |
| 1. Homologous pairs of chromosomes are the same size throughout, two small and two large. |  |  |  |  |
| **Total Score for Part I (Outcome 1-06)** | /20 | | | |
| **Criteria for Part II: Compare & Contrast Mitosis & Meiosis** | 1 mark | 2 marks |  |  |
| Difference in the purpose of each process |  |  |  |  |
| Difference in the number of cells made by each process; includes the words haploid diploid |  |  |  |  |
| Difference in terms of cells produced: haploid or diploid? |  |  |  |  |
| Difference in terms of sexual/asexual reproduction |  |  |  |  |
| **Total score for Part II (Outcome 1-06)** | **/8** | | | |