# Marvellous monosaccharides

***Education in Chemistry***September 2019[rsc.li/2YTOmOl](https://rsc.li/2YTOmOl)

## Answers



1. What is the IUPAC systematic name for glucose as shown in the diagram above?

**2,3,4,5,6-pentahydroxyhexanal**

1. What is the difference between - glucose and -glucose?

***The hydroxyl (OH) at C1 have different arrangements in space.***

1. Draw four repeating units of the cellulose and starch polymers.

|  |  |
| --- | --- |
| Cotton (cellulose) from -glucose |  |
| Starch from - glucose |  |

1. Suggest how the differences you noted in question 2 are influencing the polymer structure.

***The cellulose chain formed from - glucose is a linear chain. The starch polymer chain formed from - glucose is kinked (using proper structural forms it winds itself like a spring).***

1. Complete the table to show the skeletal structure of tetrahydropyran.

|  |  |
| --- | --- |
| **Pyran** | **Tetrahydropyran** |
|  |  |

1. Complete the table to show the skeletal structure of tetrahydropyran.

|  |  |
| --- | --- |
| **Furan** | **Tetrahydrofuran** |
|  |  |

1. Draw the two possible furanose structures of glucose (hint: look at the two pyranose forms and apply the difference to the form you are trying to create)

***Stereochemistry not crucial at this level***

|  |  |
| --- | --- |
| -furanose form | -furanose form |
|  |  |