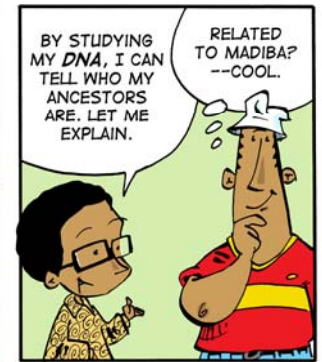
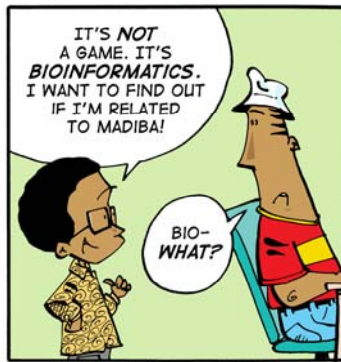


BIOINFORMATICS



DNA A LIVING CODE

CELLS OF ALL LIVING THINGS CONTAIN DNA.

DNA IS MADE UP OF FOUR CHEMICALS - (WE CALL THEM A, C, G AND T FOR SHORT).

THESE CHEMICALS FORM A CODE OR RECIPE; A SET OF INSTRUCTIONS TO MAKE PROTEINS - THE BUILDING BLOCKS OF LIVING THINGS.

OUR DNA COMES FROM OUR PARENTS AND THEIR DNA CAME FROM THEIR PARENTS TOO. SO RELATIVES HAVE SIMILAR DNA TO EACH OTHER.

ONE BIG FAMILY

BY COMPARING DNA OF MANY PEOPLE, SCIENTISTS CAN SEE HOW THEY ARE RELATED.

HOW DO THEY DO THAT?

- SKIN CELLS ARE TAKEN FROM INSIDE THE CHEEK - IT DOESN'T HURT! THE DNA IS TAKEN OUT OF THESE CELLS IN A LABORATORY.
- USING COMPUTERS, THIS DNA IS COMPARED WITH DNA COLLECTED FROM PEOPLE ALL OVER THE WORLD!

SCIENTISTS NOW BELIEVE THAT ALL THE PEOPLE OF THE WORLD ARE RELATED TO A SMALL GROUP OF PEOPLE WHO ONCE LIVED IN AFRICA.

THE KHOI SAN OF SOUTHERN AFRICA ARE THEIR CLOSEST LIVING RELATIVES. MADIBA IS CLOSELY RELATED TO THE KHOI SAN PEOPLE. PERHAPS I AM TOO!

BIOINFORMATICS

SO WE USE THE POWER OF COMPUTERS TOGETHER WITH OUR KNOWLEDGE OF BIOLOGY TO ANSWER QUESTIONS. THIS IS CALLED **BIOINFORMATICS**.

BIO-INFORMATICS IS ALSO USED FOR:

FIGHTING MALARIA

COMPUTERS CAN PREDICT THE SHAPE OF PROTEINS (BUILDING BLOCKS OF LIVING THINGS). THEY CAN BE USED TO CHECK THAT MALARIA TREATMENTS WILL DESTROY MALARIA PROTEINS BUT NOT HUMAN ONES.

TESTING DRUGS

COMPUTERS CAN BE MADE TO BEHAVE LIKE CELLS. WE CAN TEST THE EFFECTS OF A NEW DRUG ON THE COMPUTER RATHER THAN ON A LIVING CELL.

THIS IS GREAT -- WE SHOULD'VE THOUGHT OF THIS AGES AGO.