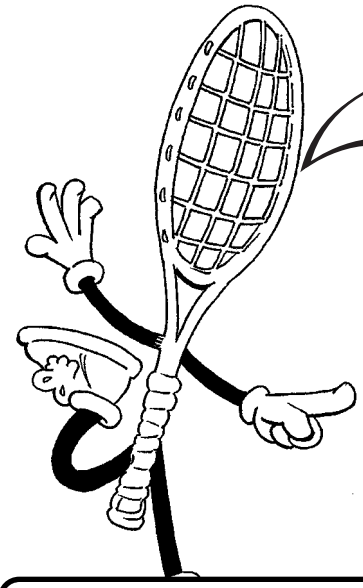
TENNIS RACQUETS

Worksheet 6



This tremendous speed of his serve was only partly due to Andy's great ability.

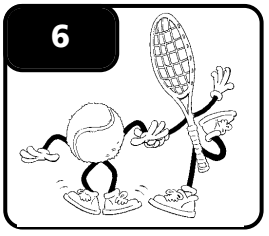
Much of the credit must go to the racquet he was using. The design of the modern tennis racquets mean that players can hit the balls with much greater speed and accuracy than they could in the past.

To find out more, fill in the blanks in the following paragraph using words from the box underneath.

Most racquets made up until the 1970s were made of _____ and had _____ grips on the _____. A typical racquet was 68cm _____, had a head with a _____ of about 142cm^2 and weighed about 368 _____. _____ was used to replace the wooden frame in about 1972 and since then a range of different materials such as _____ and _____ have been used. These racquets are _____ and _____ than the traditional wooden ones.

Strings on the racquet are important too. Their job is to absorb the _____ from the ball and return some of it to the ball to _____ it to fly through the air. The most popular string is still made from natural gut, such as cows' _____, although some are made from _____ or _____.

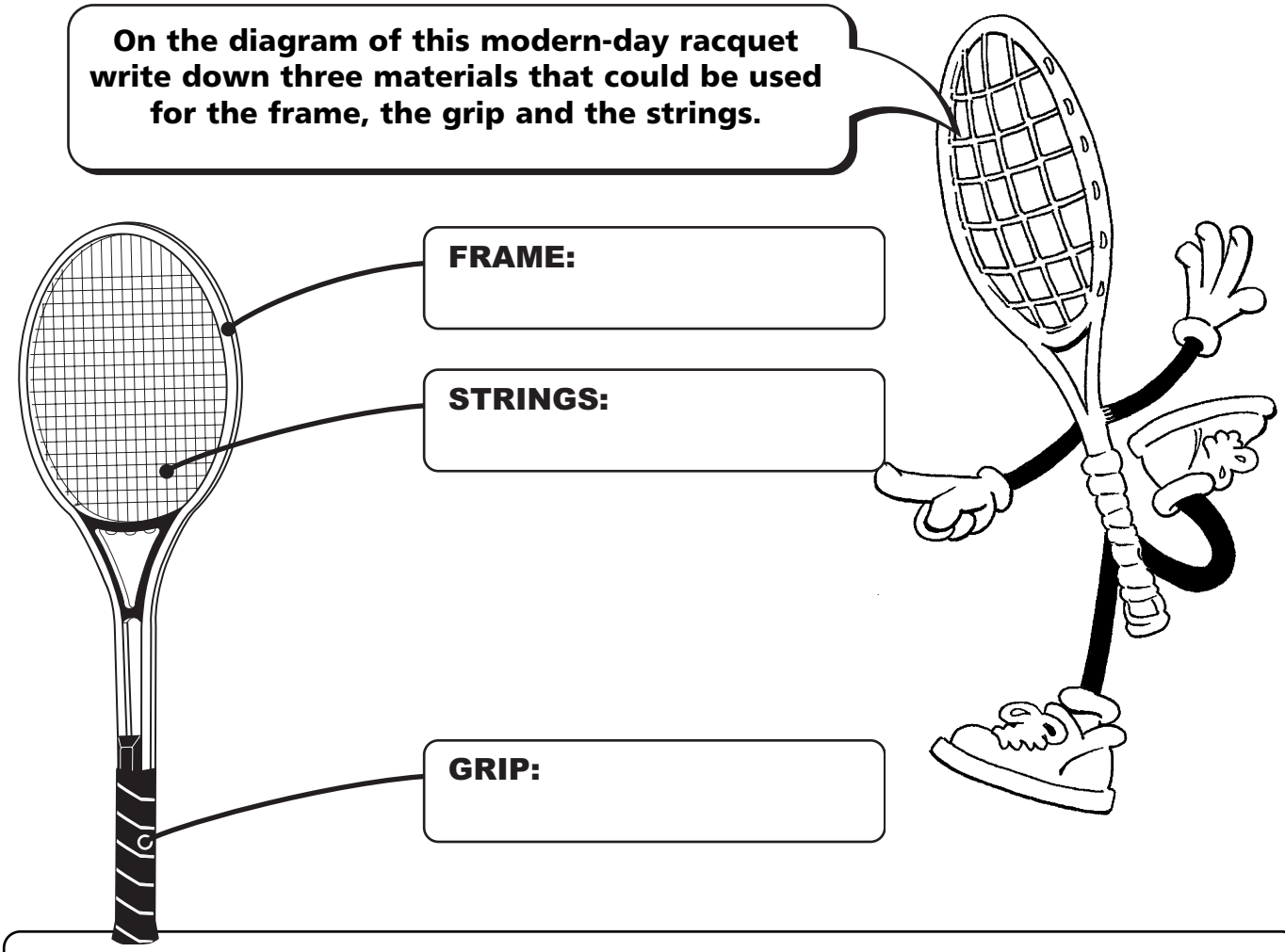
titanium	**lighter**	**intestines**	**stronger**
surface area	**handles**	**leather**	**Metal**
polyester	**nylon**	**energy**	**long**
wood	**force**	**graphite**	**grammes**



TENNIS RACQUETS

Worksheet 7

On the diagram of this modern-day racquet write down three materials that could be used for the frame, the grip and the strings.



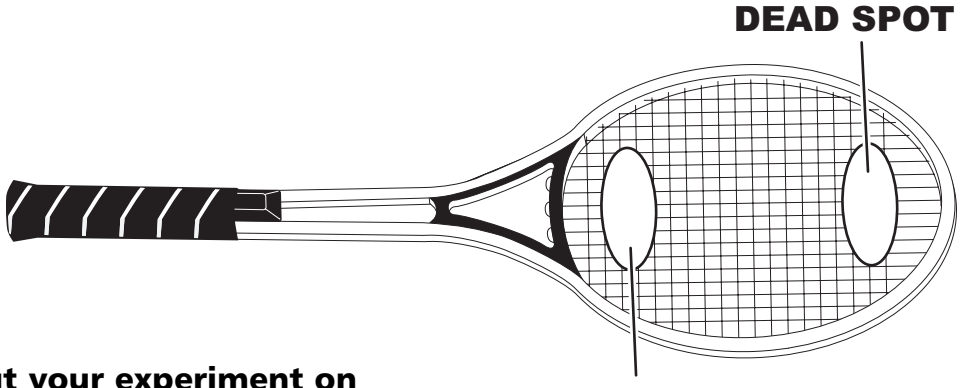
FRAME:

STRINGS:

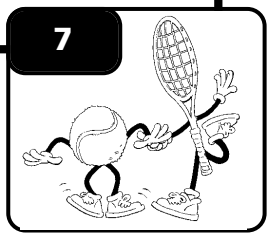
GRIP:

Carry out an experiment to find out whether the following statement is true or false.

A ball will bounce best near the handle of a racquet and will bounce very little at the dead spot near the end. At the dead spot, all of the ball's energy is transferred to the racquet, and the racquet does not transfer any energy back to the ball.



Write out your experiment on the following page.



TENNIS RACQUETS

Worksheet 8

Aim

Prediction (Is the statement true or false?)

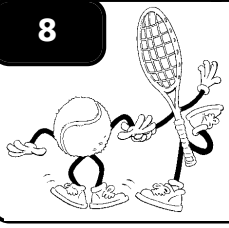
Apparatus

Method (Write a method for your experiment, which will ensure that your results are reliable and your test is fair.)

Results

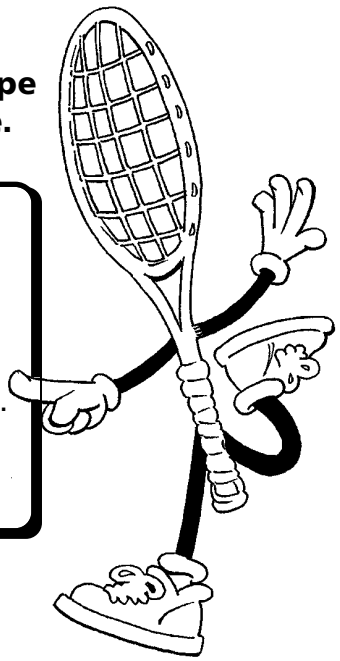
Conclusion

Therefore, the statement is …



TENNIS RACQUETS

Worksheet 9



In a similar experiment, Jayne was asked to find out which type of strings on a tennis racquet produced the greatest bounce.

- She used similar racquets with four different kinds of strings.
- She clamped the handles of the tennis racquets to a table so that the heads hung freely over the edge.
- Then she dropped a tennis ball from a height of 65cm on to the head of each racquet and measured the height to which it bounced.
- She repeated this three times with each racquet, taking care to bounce the ball on the same area of the head.

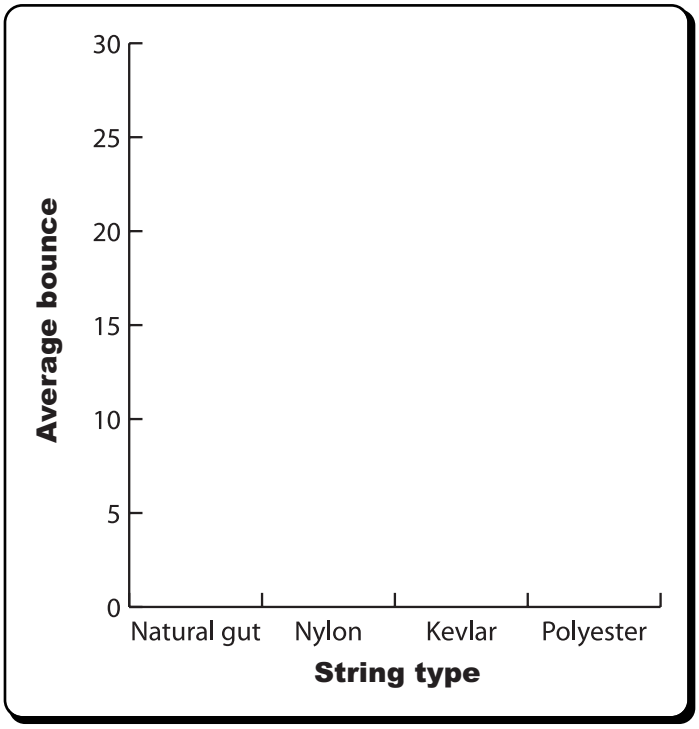
The table below shows her results

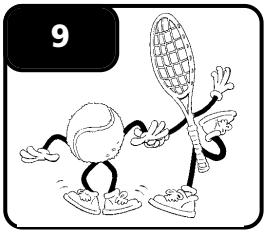
1. Work out the average bounce of the ball for each string type and fill in the end column of this table.

Type of string	Result 1	Result 2	Result 3	Average
Natural gut	26cm	27cm	25cm	
Nylon	14cm	17cm	15cm	
Kevlar	19cm	21cm	22cm	
Polyester	18cm	15cm	19cm	

2. Draw a bar chart to show Jayne's results.

3. What conclusions would you make from this experiment?

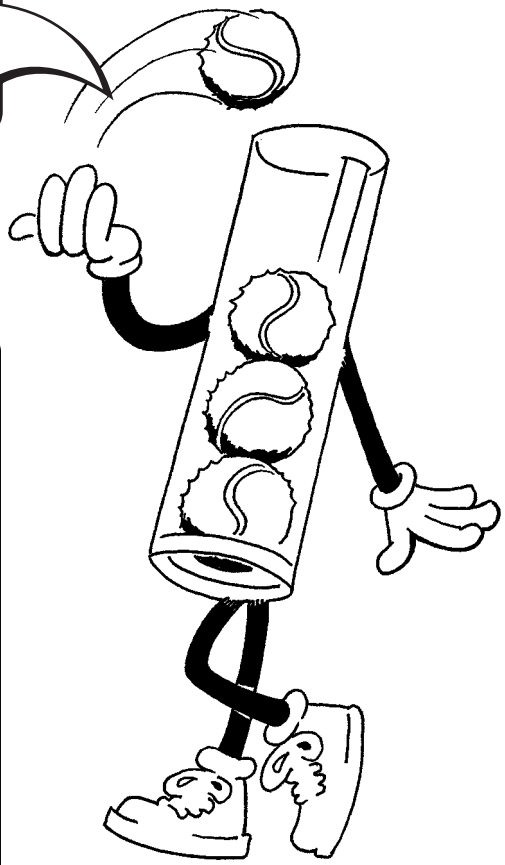




TENNIS BALLS

Worksheet 10

The specifications of a tennis ball are carefully defined by the International Tennis Federation (ITF)



Complete this information using some of the words and numbers from the box underneath.

Note: There are more words than you will need.

The official _____ of a tennis ball must be more than 2½ inches but less than _____ inches. The _____ must be more than _____ but less than 2 1/16 ounces.

Tennis balls are _____ and made from two pieces of _____ which are _____ together. The inside is _____. The outside is covered with _____ or felt fabric and an _____ sealant covers the seams. The rules also say that, when dropped onto a concrete base from a height of _____, the ball should bounce more than 53 inches but less than _____.

In September 2001 the ITF approved the use of _____ different types of tennis balls. The balls can be chosen depending on the _____. Type 1 balls are used for fast courts; type 2 balls are used for _____ speed courts and type 3 balls are used for _____ courts.

concreted	24 feet
steel	58 inches
cotton	solid
radius	circumference
100 inches	mass
metal	three
sewed	25/8
elastic	3cm
height	slow
surface	medium
2 ounces	diameter
day	twelve
28cm	weather
cemented	wool
plastic	62 feet
3km	sixty
rubber	hollow
weight	pressurised