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STATEMENT OF THE PROBLEM

A newly established school wants to involve senior students in a sports program with neighbouring schools but is on a limited budget. Football, netball and soccer are the chosen sports.

Develop a plan for a proposed visit from another school remembering the school has no uniforms or equipment but does have the appropriate grounds available.

SPORTS DAY – THE STORY

The Planning Stage

We posed the statement of the problem to the students, and led a brainstorming session to identify the main issues that would need to be addressed to develop a plan for the sports day. Using butchers' paper, the students recorded their ideas under the following headings:

- What do we already know?
- What do we need to do?
- What will we need to do it?
- Where and how will we get it/find it?
- How much do we need?
- What do we need to find out?

We found that the students came up with many ideas to these types of questions - in fact they often went off on a tangent but could be quite easily brought back on target by gentle prompting of relevant ideas.

The students established that what they already knew included we have a limited amount of money to use (they were told \$2000); no sports equipment, we have the grounds; we want to play three sports – football, netball and soccer; we want to play against another school and we have 6-8 weeks to plan.

In terms of what needed to be done initially, the students came up with such suggestions as start planning, survey, write invitations, ring people, fund raise and plan teams.

Authentic Task – Sports Day

The suggestions of useful resources included catalogues, the Internet, parents, telephones, sports stores and surveying kids for their sizes.

The students established that the things they would need to run a successful sports competition day included uniforms and equipment, people in teams, goals, coaches, umpires, lines, supporters, banners and awards. Other things discussed as needing to be addressed included clarifying the budget and staying within it, working out training times and other scheduling issues, looking at the students' diets and investigating possible media coverage. They also established that they may need the assistance of the school council and/or parent club in organising the day and working out the parameters.

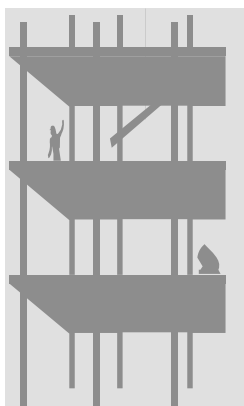
The next matter we asked the students to discuss was a plan for going about the Task. We addressed such issues as how we were going to go about it – whether things should be done in groups or pairs; the assignment of responsibilities among the students; what resources were available to make use of – for example, the Internet, photocopiers, the library; and how the task was going to be presented. Discussion of the presentation resulted in ideas such as make our own book, power point, posters, charts, a big book, build/make it, and an enquiry of can we use a calculator?

Following this brainstorming session, the students were keen to discuss how to raise extra money and to devise ways of finding information. They decided to work in pairs, threes, and some individually, and some decided that the best approach was to concentrate on one sport at a time.

Doing the Task

The first steps the students took after planning was to use the telephone and Internet to find out the cost of clothing and equipment (see work sample 1 and 2), and to find out the cost of food and other items for fundraising purposes. We discussed matters like profit and budgeting – how much do we order, how much do we need, would we have enough money – as they arose.

The students were adventurous in ringing sports companies and found out that by ordering the most expensive uniforms, the budget would be blown. Students used their mathematical knowledge and calculators to ensure the money was wisely spent and in raising extra dollars where it became necessary.



A U T H E N T I C T A S K

Authentic Task – Sports Day

When our research was complete, the students presented their findings to the rest of the class. We ended up with quite a variety of presentations, including posters, charts, power point presentations and booklets. The initial plan for assessment of the Task involved four components, including teacher observation of how the students worked, the students' diaries of their work, a rubric, and the students' final presentation. Assessment consisted, in the end, of a final presentation where members of the class were asked to evaluate each student or group's presentation, giving an A, B, C or D based upon the following criteria:

- Did their plan solve the problem?
- Were they organised?
- How did they present themselves and what did their presentation look like?
- The use of maths in their problem solving.

Whilst assessing we realised that a rubric would have been a useful tool as a means of structuring the evaluation.

There were some really interesting aspects of the students' work which were evident during the students' presentations, for example we learned a lot about sponsors and were pleased to see some students interact with their PowerPoint presentations very effectively resulting in some great presentations. Several groups presented their work in a booklet form which brilliantly described their situation and showed that they had prepared invitations, written letters to organise coaches and sponsors, investigated relevant information regarding fundraising, uniforms and equipment costs and profits, and even designed uniforms. Another group had used the telephone a lot in their research and explained its use really well in their presentation, while another group described their fundraiser really well and demonstrated quite a good understanding of the idea of profit (see work sample 3).

After the Task

We had two sports days against our neighbouring school. Year 3/4 had a games day and Year 5/6 competed in football, netball and soccer as set out in the problem. This was a fantastic experience for the students, for although the days were not directly as a result of their planning, the experience gave them the opportunity to see an end product to their work and to see maths as a part of everyday life.

A U T H E N T I C T A S K

Work sample 1: The soccer competition budget.

5 to 6

SOCCER!

\$1724.9

4 soccer balls \$5.20 ea
 $5.20 \times 4 = 20.8$

2 soccer nets $2 \times 199 = 398$ ~~299~~ ea

2 pairs goal gloves \$18.90 each $2 \times 18.90 = 37.8$

20 soccer shin guards Nyda \$3.90 each $20 \times 3.90 = 78$

1 Jumbo (17 soccer balls) bag \$9.50 each = \$9.50

Awards \$3.05 ea $20 \times 3.05 = 61$

1 count down timer \$21.90 each = //

4 plackie whistles with cord \$4

5 large 15 medium soccer red and white shirts $20.40 \times 20 = 408$

2 goal shirts Medium and small $2 \times 20.95 = 41.9$

2 goal pants Medium $2 \times 26.7 = 53.4$

5 large 15 medium soccer shorts \$17.9/m $18.68 = 373.6$

Work sample 2: The soccer and football budget.

Budget: \$2000

Number of	Item	Cost	Left
1	S. Whistle	\$395	
3	Soccer balls	\$45	\$1955
2	Soccer Goal	\$140	\$1835 ^{\$1715}
2 pair	S. Clefs	\$24	\$1811 ^{\$1691}
15 pair	S. S. Cards	\$300	\$1511 ^{\$1391}
2 2	First Aid Kits	\$525	\$986 ^{\$865}
3	Football	\$237	\$629
1 set	F. Goal Pads	\$600	\$29
1	F. Drink set	\$15	\$14
6	F. Whistles	\$7.50	\$650 ^{\$792.5}
3	Football	\$3298.30	\$2175.25
2	F. Goals	\$2653.20	\$
2	Line Markers	\$2070.00	

Work Sample 3: Fundraiser calculations

Fundraiser Fun day

\$5 entry 200 kids = \$1000

Sausages

1kg = 16 sausages

Cost \$400 \$112 for 16kg = 256 sausages

Bredd

Loafe bread \$100 13 packets \$13

20 slices

Donuts sell for 50¢

20¢

buy 400 for \$80

~~-\$16~~

7
\$9

We've organized a fun day fundraiser. There's sausages for a \$100 ea., donuts for 50¢ ea., plus we charged \$5.00 for entry. In the end we had a profit of \$1264.

PROFIT

Entry \$500 x 200 kids = \$1000

Sausages 16kg = 256 = \$144

doughnuts 400 = \$120

Total Profit \$1264.00

Total \$205