Freshers' Group-Working Activities for Fun, Learning and Prizes

STEWART GREEN, RONG YANG AND NICK PLANT
THE UNIVERSITY OF THE WEST OF ENGLAND, BRISTOL

{STEWART.GREEN, RONG.YANG, NICK.PLANT}@UWE.AC.UK

The Wider Induction Context

- "Welcome week"
  - Preceded by "Welcome weekend" activities
  - Comprehensive range of activities from 3 tiers
    - Institution-level: registration, Freshers' Fair, other SU activities…
    - Department-level: talks on library, IT, resources…
    - Programme-level: e.g. this activity!…
  - Some are timetabled
- In the CS&CT Department in recent years:
  - More emphasis on preparing students for academic life
    - Freshers joining a scholarly community
    - Research talks from staff
    - Green IT talks and activities
    - Programming practical with C and Arduino microcontroller kit
    - This activity!

Our Group-Working Social Event: Aims

- Help students to make friends quickly
- Help them to settle into their courses quickly
- Be fun!

History

- We used bridge building with straws for a number of years to meet these goals

New Aim

- Induction to reflect:
  - cognitive skills &
  - practical skills
- that students will use in their first-year studies

Relevant Cognitive and Practical Skills

- Communication skills
- Abstract modelling skills
- Problem analysis and problem solving skills
- Practical modelling skills

Team and Individual Working

- The skills are introduced using activities
- Activities involve both:
  - Tasks for individuals and
  - Tasks for teams

Speed Networking

- A fifth activity, speed networking, facilitates:
  - Meeting and chatting to many more new students

Infrastructure

- 3 hour event
- Large open space
- 200 students from seven awards
- Teams of five
- 38 numbered tables
- 5 workstation tables
- PA system
- Marking templates
- Marking spreadsheet

Overall Schedule

Overall Schedule

- Three sessions:

T1 and A1
50-60 minutes

Speed Networking + Refreshment 30 minutes

T2 and A2
50-60 minutes

Tidy up + Prize Giving 20-30 minutes

Overall Schedule

- Three activity types:
  - T-type,
  - A-type, and
  - Speed Networking
- T-type:
  - Each group has a table as its base.
  - T-type means table based activities; students work on their own table.
- A-type:
  - Arena based activities.
  - During table based activities, groups are called out to separated areas for activities which require invigilators.

1st-hour Activities

- Some typical team names:
  - Havana Autos
  - Team Solo Mid
  - Wildcats
  - The Doorknobs
  - Twenty Fourz
  - 22CBD

Activity-1: Individual and team abstract modelling

- Modelling two restaurant processes:

1st Model

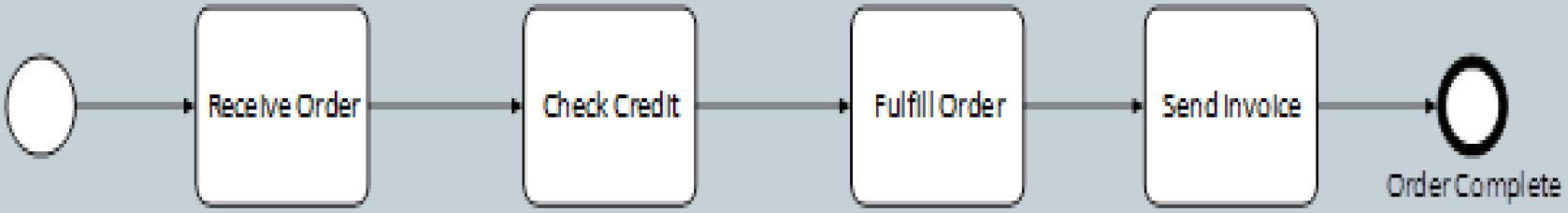
- In your team,
  - consider the process involved in dining at a first-class restaurant.
  - Your party will be greeted on arrival and then seated;
  - next your order will be taken.
  - This will be followed by your meal being served
  - and finally payment will be collected.
- Model this process using the provided notation

2nd Model

- Now consider the seating process in more detail.
  - If you have booked in advance, you will be assigned a table straight away.
  - If you haven't, the waiter will check to see if there is a free table;
    - if there is one, you will be assigned to it.
    - If there isn't, the waiter will see if tables can be rearranged to seat you;
      - if he can, you will be assigned the rearranged tables;
      - if he can't, he will invite you to wait for a table;
        - and after a certain amount of time he will check again for an available table.
- Model this process using the provided notation

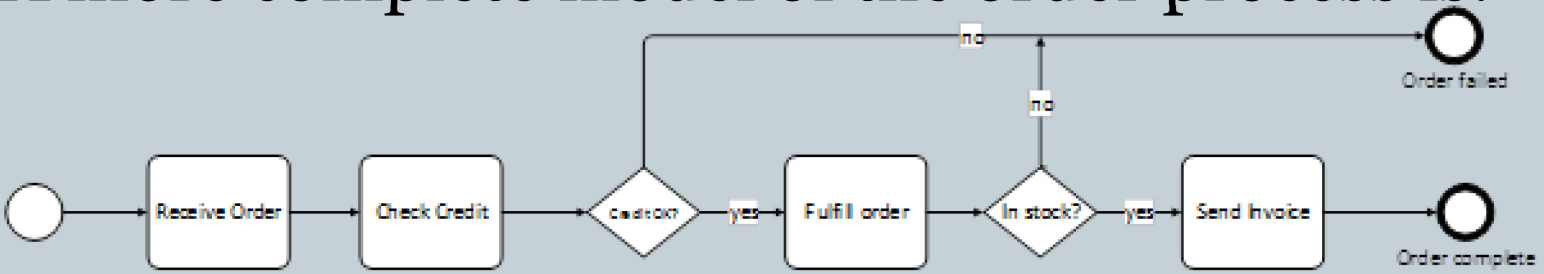
Abstract Modelling: Tuition

- Think about the process of how a company handles an order.
  - The company will receive an order,
  - check that the buyer's credit is ok,
  - fulfil the order and send out an invoice.
- In the BPMN notation this process is modelled graphically as follows:



Abstract Modelling: Tuition

- But what happens if the buyer's credit is not ok,
- or the goods aren't in stock?
- A more complete model of the order process is:



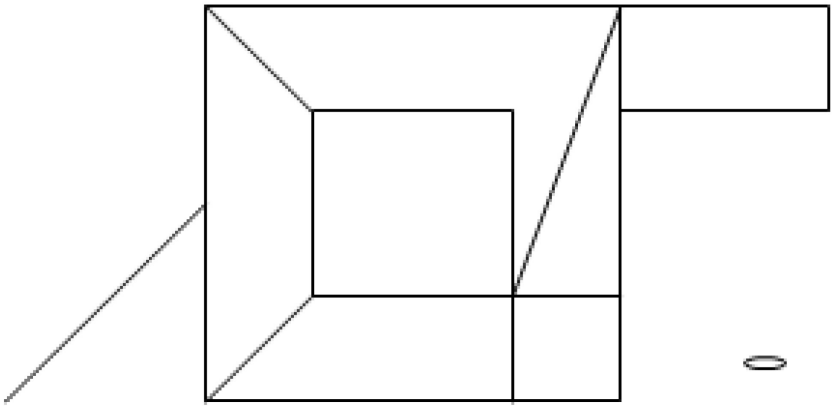
The thin circle at the start is called a *start event.*
The thick circles at the end is called an *end event.*
The rounded rectangles are called *activities.* They represent actions. They have names of the form VERB-NOUN, e.g. Send Invoice.

Activity-2: Team Communication

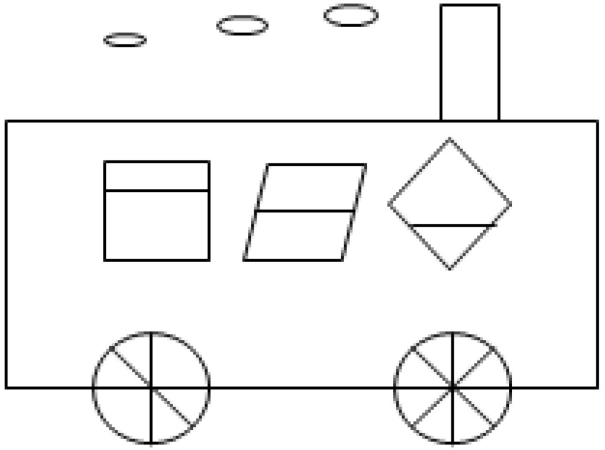
- During the first hour,
  - While teams are doing abstract modelling,
  - each team in turn is called to a workstation where
  - four team members describe a drawn figure to a fifth,
    - who can't see it,
    - but has to draw it!

Acitivity-2: Team Communication

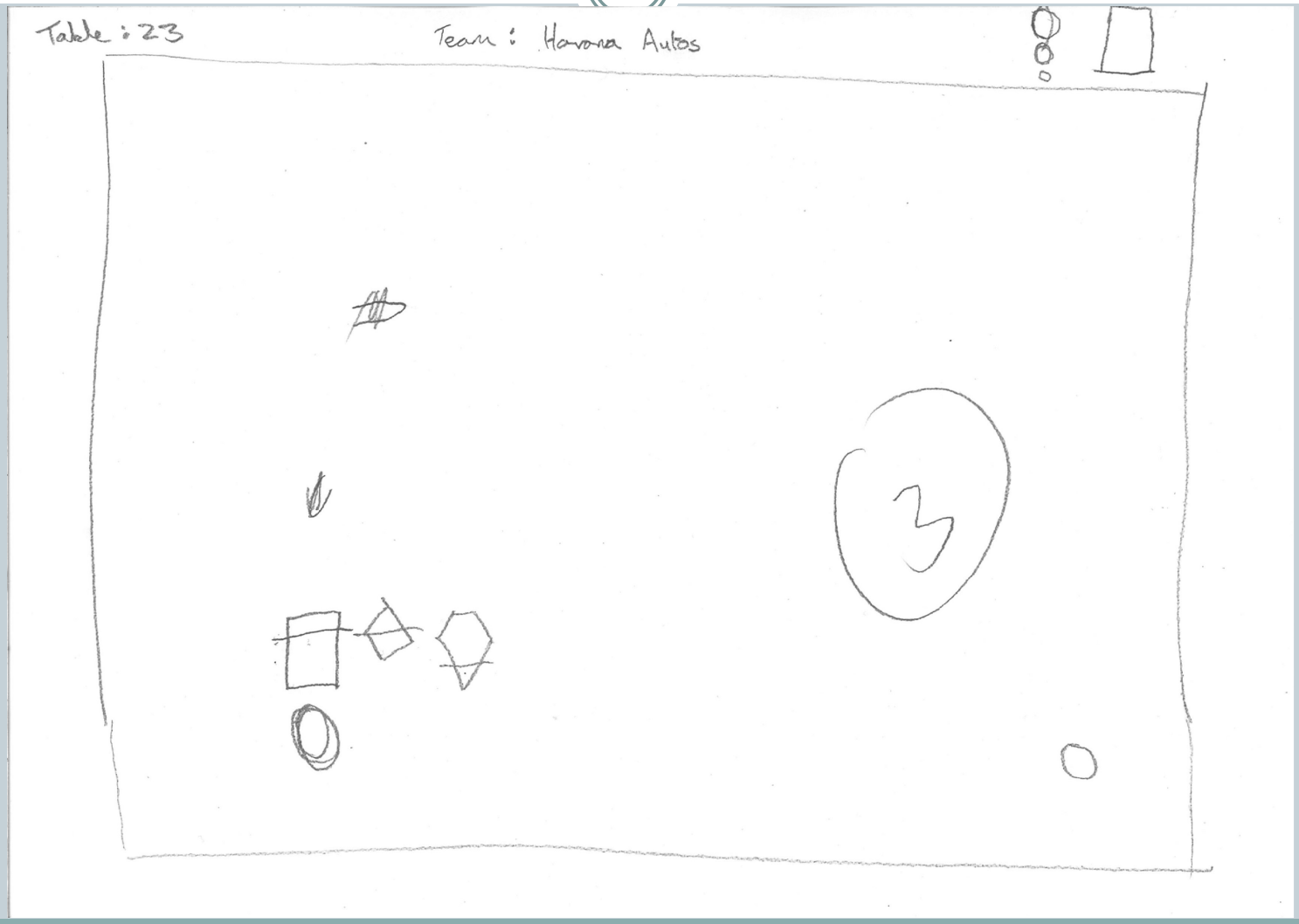
A1 – Drawing Game



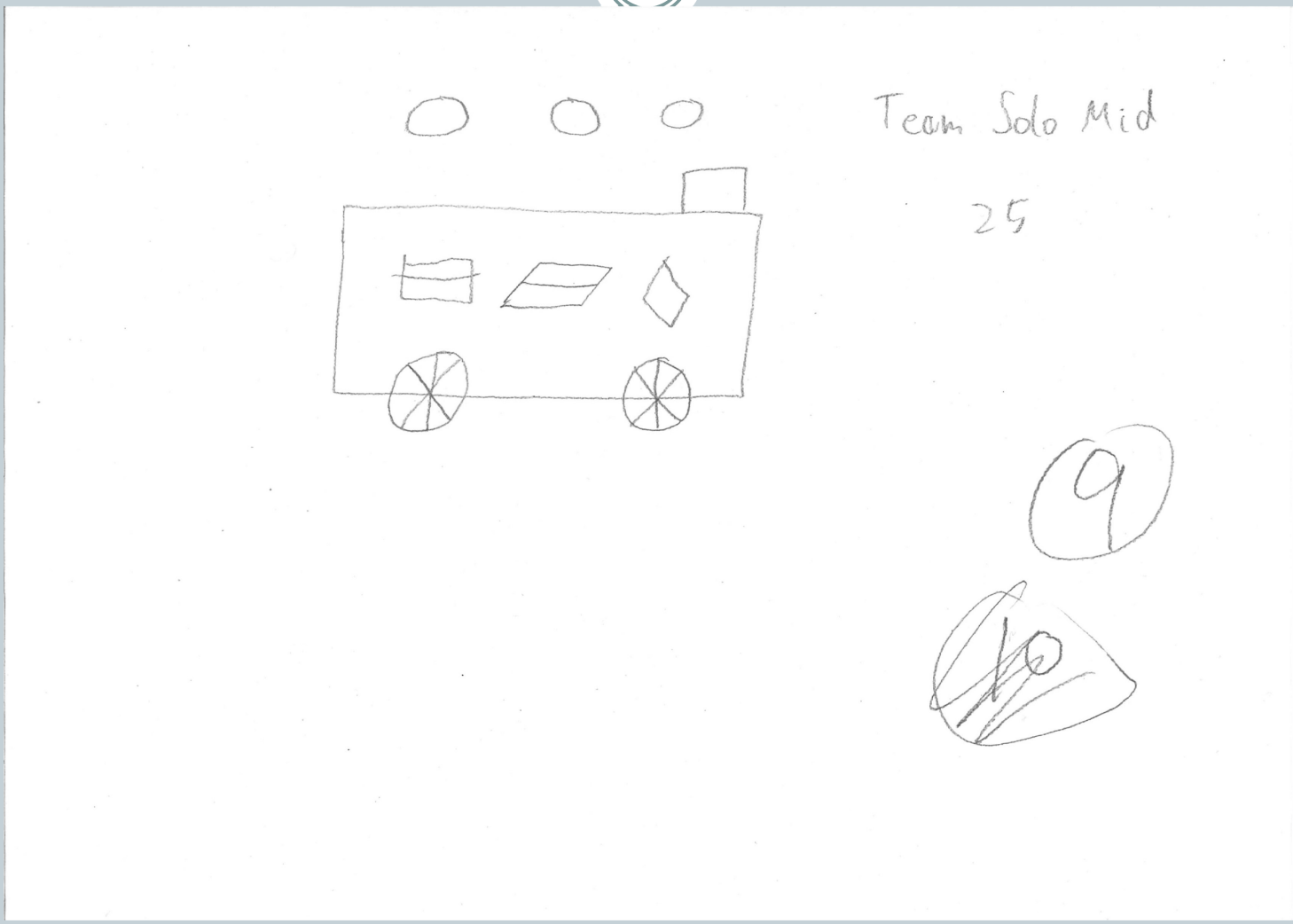
How would you describe these drawings to someone who can't see them?



Low Scoring Drawing



High Scoring Drawing



Interval: Tea and Speed Networking

- 200 people, 40 tables, 5 per table
- Using half hour refreshment break:
  - maximize the total number of new people meeting each other
- Three rounds:
  - In each round students move to a new table to meet new people.
- We wrote a computer program to generate a schedule for each individual student

Speed Networking Scheduling Algorithm

- Data structures used:
  - Relation-matrix to track who has met who
  - People-lists to track who has been assigned or not assigned
- From round one to round N do {

  From table one to table M do {
  - Randomly assign people to a table until it's full
  - If a person has met any one on the table, pick another person
  - After assigning a person, update the relation matrix

  }

}// if no suitable person, backtrack

2nd-Hour Activities

- During the next hour, each team was called to one of the workstations set aside where:
  - each member flew their aeroplane.
  - points were scored for the distance flown
  - scores aggregated for team's overall score
- In parallel, team solved the "travelling salesman" problem

Activity-3: Individual Design and Build

- Individual activity: create a paper aeroplane from a sheet of A4 paper…
- … and fly it!

Activity-4: Analysis and Problem Solving

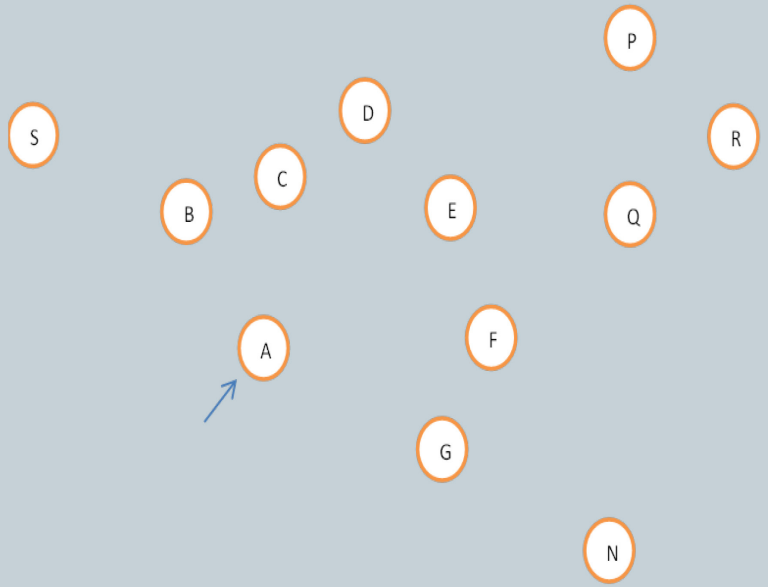
- Solving the “travelling salesman problem”
  - A classical computationally “expensive” problem
  - Encourages teamwork

Activity-4: Analysis and Problem Solving

Explanation

- On the right is our campus map
- Each node is a building
- The task is to plan the shortest route from A-block back to A-block, visiting each other block exactly once

Campus map



Activity-4: Analysis and Problem Solving

The distance between blocks in metres.

So, e.g. D to C is 24 metres

distance	A	B	C	D	E	F	G	N	P	Q	R	S
A	0	30	33	50	49	50	40	78	100	82	114	64
B	30	0	24	44	52	70	75	98	98	96	120	40
C	33	24	0	24	30	52	62	86	76	72	100	50
D	50	44	24	0	26	50	72	86	66	66	90	62
E	49	52	30	26	0	26	48	68	64	60	80	72
F	50	70	52	50	26	0	26	44	72	56	82	78
G	40	75	62	72	48	26	0	39	92	60	93	79
N	78	98	86	86	68	44	39	0	96	66	82	112
P	100	98	76	66	64	72	92	96	0	30	28	108
Q	82	96	72	66	60	56	60	66	30	0	28	108
R	114	120	100	90	80	82	93	82	28	28	0	130
S	64	40	50	62	72	78	79	112	108	108	130	0

Results

- Results were totalled for each team
- Marks for tasks were normally distributed across teams
  - So task difficulty had been judged (approximately) correctly

Prize Giving

- £20, £10 and £5 gift tokens awarded to the 1st, 2nd and 3rd placed teams.

Student Feedback

- "I found the **speed networking** exercise ***useful***.
  - For some strange reason many computer people are not the most extrovert and this was ***a really good icebreaker***.
  - The time limits meant you got to ***meet lots of different people***"
- "The **travelling salesperson** was ok
  - ***I liked*** the fact it was ***intellectual*** rather than practical –
  - I hate those things where you have to build something out of straws & milk bottle tops. The **paper planes** thing was ***fun*** and again, a ***good way of meeting other students***."
- "I ***enjoyed the social*** a lot.
  - That is actually where I ***made some of my closest friends***, including one person I am living with next year.
  - The activities were ***good for teams*** to do. A ***valuable experience***!"

Students' Criticisms & Constructive Suggestions

- "One final very small thing, it didn't say there would be food there, so I had lunch beforehand. This meant I ***missed out on the sandwiches."***
- "I did find that the **salesman problem** was ***quite long*** to get through.
  - I would suggest to use more of ***a technological approach***, for example games that use mobile phones or computers for solving problems that are fun and interactive for a whole team."
- "The travelling salesperson was ok but it's ***not really something that involves teamwork"***
- Re the travelling salesman:
  - "I think something that could be ***broken into several components*** would have been ***more suited to teamwork***."

Staff Costs

- Very cost-effective event:
  - 200+ students managed by just 6 members of staff who
    - Supervised activities
    - Marked activities

Other Universities may Adopt and Adapt

- Either:
  - Customise the activities we used for these categories
    - Problem analysis and solving
    - Communication
    - Abstract and
    - Concrete modelling
- Or:
  - Replace one or more of these categories with your own and
  - Choose appropriate activities for your categories

Materials

- A4 paper
- 200 pencils
- 20 rubbers
- Coloured scellotape (for distance markers on floor)
- Table numbers
- Blue tac
- Marking sheet pro formas
- Marking spreadsheet
- PA system

Hour-1 Table Materials

- Modelling instructions x 5 (one for each team member)
- Modelling answer template with header x 1 (team answer)
- A4 paper for draft modelling x 5
- Drawing task marking sheet x 1
- 5 pencils
- 1 rubber

Hour-2 Table Materials

- Travelling salesman instructions x 5
- Travelling salesman answer sheet x 1 (team answer)
- Aeroplane paper x 5 (one for each team member)
- Aeroplane instructions x 1 (for the table)
- Aeroplane marking sheet x 1 (for the team)