

ITA Transcripts

- Title:** Theoretical and Applied Mechanics 224, Mechanical Behavior of Materials
- Focus:** This is a transcript of a lab class taught by a domestic TA covering instructions for testing hardness of metal specimens. In this transcript the TA describes a procedure to be carried out in the lab, along with some effects that will be noticed during the process. He frequently uses logical connectors like "so" and "and then". Students studying this transcript could notice and practice describing a process while providing relevant information (like reasons for steps in the process or results that are likely to be observed). Another interesting aspect of the transcript is that in two places (lines 9-11 and lines 51-53) the TA puts off explaining or giving information to the class by assuring them that the point will be clearer later.
- Contributed by:** Jill Knutson and Dean Papajohn, University of Illinois
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- Context:** A domestic TA is explaining, in a classroom, what the students will do when they return to the lab in the next hour.

1 T: and the last part of the lab that we
2 have to do
3 (1.0)
4 is looking at Jominy hardenability,
5 ((writes on board: Jominy hard))
6 (1.0)
7 well just the Jominy test basically
8 ((erases "hard"))
9 u:m thIs'll make more sense when we go
10 into the lab.=I won't spend a lot of
11 time talking about it in the lecture
12 but bAsically what we're going to be
13 doing
14 is we're going to be
15 plotting hardness,
16 in this particular case it'll be uh
17 Rockwell C hardness,
18 um: along the length of a bar.

19 ((draws an x and y axis with an inverted
20 curve))
21 now hh the bar, is: basically a cylindrical
22 metal um specimen and it's- we're gonna
23 take it out of the oven.
24 we're just going to hold it in a um: a
25 bracket, ((demonstrates as if the piece of
26 chalk were the metal cylinder))
27 so it's all going to be: heated up to
28 845 degrees celsius.
29 and then we're going to start spraying
30 water on the bottom of it.
31 so water will be hitting the bottom of
32 the specimen so:
33 the bottom of the cylindrical specimen
34 will be cooled the quickest,
35 and then you know as the water has a
36 chance to take heat away from the specimen
37 you know it's going to cool y'know
38 gradually as it goes up to the top.
39 so the bottom of the specimen will be
40 cooled at a faster rate than the top of
41 the specimen
42 And: because of the differences in cooling
43 rate, we expect a difference in hardness.
44 and actually as we go along the bar you
45 would ex- we would expect it to decrease
46 because the harder end of the bar is the
47 end that was cooled y'know the quickest
48 and the fastest.
49 so we hope to see some kind of a curve like
50 this ((points to diagram on board))
51 and again that's the next thing to do
52 when we go into the lab=so I won't spend
53 a lot more time um: discussing that now=
54 =um: are there any questions on what we've
55 done so far.
56 (1.0)
57 T: yeah. ((nods and gestures toward a student
58 who has a question))
59 S1: s 1045 steel.
60 T: th- it's all 1045 steel yeah=the: Jominy
61 is uh- 6150,
62 (0.8)
63 but thee: u- all the tension uh- specimens
64 are all 1045.

65 so we hope we can draw some comparisons
66 to the ones from the tension uh lab.
67 'cause that was one of the um steels that
68 we used there.
69 (2.8)
70 any Other questions.
71 (4.0) ((T looks around room))
72 okay hh uh if thAt's the case,
73 (1.0)
74 Øoh actuallyØ the last thing that we
75 need to do, just a quick review on um
76 the Instron machines,
77 since it's been a while since we actually
78 did the tension lab.
79 so we have here a THree-minute video tape=
80 =just goes through the high points of
81 actually u::m using the Instron machines.
82 ((starts video))

Discussion questions

(suggested answers are given in italics)

1. Why do you think the TA uses the pronoun "we" throughout this talk?
Although the students, not the TA, will actually be doing the work, using "we" sounds more collaborative and less authoritative (less like the TA is giving orders).
2. Look at lines 9-11 and lines 51-53. What is the TA accomplishing with these statements?
The TA is delaying giving some kind of information or explanation to the class. He may want to assure them that their questions will be answered, and that they do not need to feel like they understand completely now.

Exercise

In lines 21-41 the TA explains the process that the students will go through in the lab and some of the effects they will observe during this process. Circle the logical connectors "so," "and then," and "as" in this section. How is each of these connectors used? What is the difference in their meaning?

"So" connects a cause with a result.

"And then" shows sequence in time.

"As" indicates two things happening simultaneously.

Here is another process that the same TA has to describe to the class. Write a description of this process as if you were speaking to the class. Make use of the following logical connectors or others you can think of.

because, and then, so, as, in order to, since

Quenching heated steel specimens

1. Both students put on gloves.
2. Student 1 opens oven.
3. Student 2 uses tongs.
4. Student 2 pulls specimen from oven.
5. Student 2 places specimen in liquid and stirs it around.
6. Specimen should be placed straight down in liquid.
7. Putting specimens in at an angle can cause them to bend.
8. Specimens need to be straight for the Instron testing machines.

Possible follow-up assignment

Each student brings in a list of steps in a process and gives oral instructions to the class.