

Engineering Gold

On the Slopes



Professor Styring tested his self waxing skis on different ski slopes. In the 'Engineering Gold' programme you saw him collecting measurements on the snow covered slopes.

Graph 1 shows the results from these tests.

Graph 1: Times down the slope with two wax methods

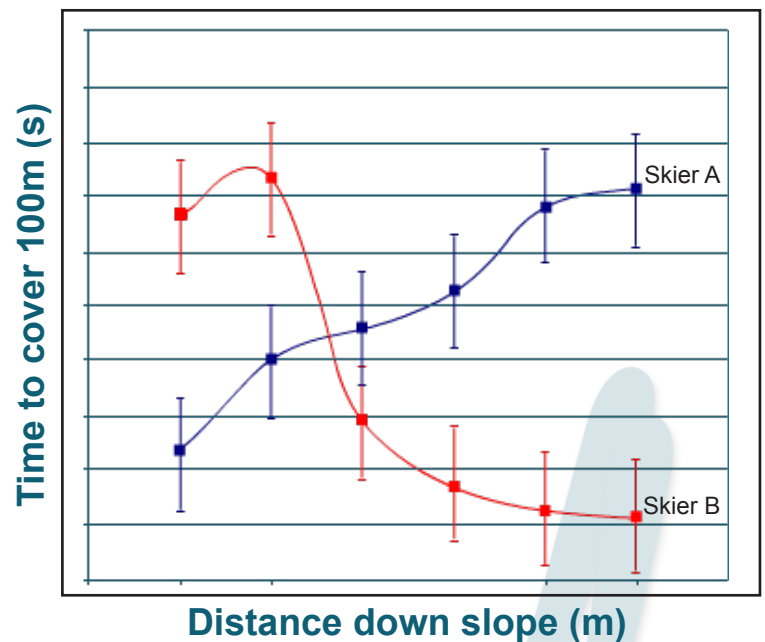


Table 1: Increases in speed on different ski surfaces.

Test	GS	DH	DH	DH	DH
Surface	Dendix	Dendix	Snoflex	Artificial snow	Alpine snow
Percentage Speed increase	23	32	48	8	1 Feb 2007

Data taken from Snowsport England Validation Tests

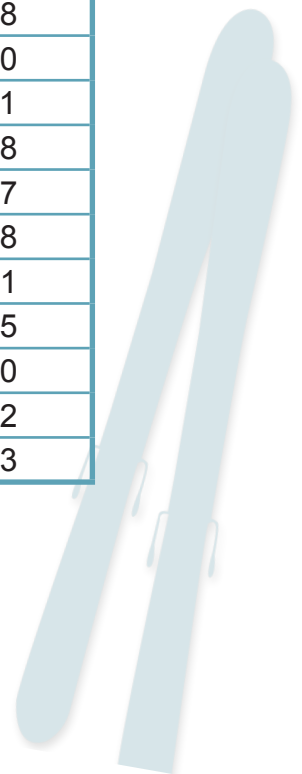


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Table 2: Results for Mens Downhill Ski race, Winter Olympics 2006.

Place	Athlete	Time	Difference
Gold	Antoine Dénériaz (FRA)	1:48.80	0.00
Silver	Michael Walchhofer (AUT)	1:49.52	+0.72
Bronze	Bruno Kernen (SUI)	1:49.82	+1.02
4	Kjetil André Aamodt (NOR)	1:49.88	+1.08
5	Bode Miller (USA)	1:49.93	+1.13
6	Hermann Maier (AUT)	1:50.00	+1.20
7	Marco Büchel (LIE)	1:50.04	+1.24
8	Fritz Strobl (AUT)	1:50.12	+1.32
9	Patrick Staudacher (ITA)	1:50.29	+1.49
10	Daron Rahlves (USA)	1:50.33	+1.53
11	Pierre-Emmanuel Dalcin (FRA)	1:50.35	+1.55
12	Tobias Grünenfelder (SUI)	1:50.44	+1.64
13	Manuel Osborne-Paradis (CAN)	1:50.45	+1.65
14	Lasse Kjus (NOR)	1:50.64	+1.84
15	Scott Macartney (USA)	1:50.68	+1.88
16	François Bourque (CAN)	1:50.70	+1.90
17	Ambrosi Hoffmann (SUI)	1:50.72	+1.92
18	Kurt Sulzenbacher (ITA)	1:50.84	+2.04
19 =	Steve Nyman (USA)	1:50.88	+2.08
19 =	Peter Fill (ITA)	1:50.88	+2.08
21	Aksel Lund Svindal (NOR)	1:50.90	+2.10
22	Klaus Kröll (AUT)	1:50.91	+2.11
23	Kristian Ghedina (ITA)	1:50.98	+2.18
24	Yannick Bertrand (FRA)	1:51.37	+2.57
25	Finlay Mickel (GBR)	1:51.48	+2.68
26	Didier Défago (SUI)	1:51.51	+2.71
27	John Kucera (CAN)	1:51.55	+2.75
28	Andrej Jerman (SLO)	1:51.70	+2.90
29	Bjarne Solbakken (NOR)	1:51.72	+2.92
30	Pavel Chestakov (RUS)	1:51.93	+3.13





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Questions

Use information from the graph and the data tables to answer the following questions.

1. What was Professor Styring trying to find out?
2. Look at Graph 1 showing the results he collected on the slopes.
 - a. Which line (A or B) shows the results for the skier with self waxing skies? Explain your answer.
 - b. When did the self waxing ski start working? Explain your answer.
 - c. What conclusions can you draw from the results?
3.
 - a. Draw a graph of the results for the self-waxing skis on different ski surfaces.
 - b. Which surface shows the greatest increase in speed?
 - c. Which surface shows the smallest increase in speed?
 - d. Suggest a reason to explain the differences between the effects of the wax on different surfaces.
4.
 - a. What was the difference in time between first to tenth place in the Men's Downhill race in the Winter Olympic Games?
 - b. What position did the top British skier come?
 - c. What was the difference in time between first place and the first British skier?
 - d. If only the British team use Professor Styring's self waxing ski and secret formulation at the next Winter Olympics, could Britain win gold in the men's downhill race?
 - e. On what evidence do you base your conclusion?

