

TUNNELWORKS

KS4 MATHS LESSON 1 WORKSHEET

PLANNING & PREVENTION: DATA HANDLING

Email

To: TBM team

From: Head of construction planning

I need to ensure our schedules are realistic. Can you look at these raw data regarding the TBM. They're from the manufacturer and were recorded under similar excavating conditions. Can you use them to generate planned maintenance schedules? We need to ensure there are no delays so the Tunnel is operational on time!

Raw data – times between unplanned maintenance

Slurry extraction pump (days) 11, 9, 8, 8, 7, 7, 8, 10, 8, 7, 8, 10, 7, 5, 8, 6, 9, 9, 6

Crusher (hours) 25, 24, 28, 27, 26, 25, 24, 23, 22, 21, 20, 19, 18, 23, 24, 25, 26, 20, 21, 22, 25, 26, 27

Thrust cylinder (days) 16, 18, 17, 17, 15, 14, 16, 18, 18, 16, 17, 15, 16, 14, 13, 17, 15, 13, 18, 17

Challenge 1: Find the mean times between unplanned maintenance

Use these frequency tables to calculate the mean times before each part requires unplanned maintenance. **Remember:** *unplanned maintenance responds to problems, while planned maintenance prevents problems happening.*

Part:

Mean time to failure:

Part:

Mean time to failure:

Part:

Mean time to failure:

Challenge 2: Plan the inspections

Write a reply to the email above. Explain your recommended planned maintenance interval for each part.