

INTRODUCTION TO SIGNALLER TRAINING

DAY 10 - PUTTING IT ALL TOGETHER - COMPONENT 1 - WEEK 1 QUIZ/ACTIVITIES

Week 1 quiz

Let's see what you remember from Week 1 with some questions and activities. There's no pass mark and you can't fail, but your *LOM?* will be able to see your scores from your first attempt so they'll have an idea of how much you've understood.

Work your way through the lessons for each day.

Day 1 Welcome onboard

On Day 1, the question was Why did we start signalling on the railway?

You learnt about the history of signalling and also looked at some learning theory and techniques to see you through the rest of your training. Have a go at the questions below to refresh your memory and challenge yourself.

In the old 19th Century time interval signalling system, the train behind often caught up with the one ahead. Why? Select all that apply.

Trains often broke down because they were less reliable.

There was no effective communication between trains and signallers.

The second train was more important.

The speed of the train ahead could not be guaranteed.

Signallers had miscalculated the time gap.

ANY RESPONSE FEEDBACK: The 19th Century time interval signalling system, where signallers flagged trains at stations depending on the time gap between them, often led to crashes. This is because trains often broke down because they were less reliable, there was no effective communication between trains and signallers, and the speed of the train ahead could not be guaranteed.

What's the basic rule of block signalling? Choose the one correct answer.

To keep trains apart.

To stop fast trains.

To warn drivers of an obstruction on the line.

CORRECT FEEDBACK: That's it. The block system was introduced so specific stretches of track were occupied by only one train at a time.

INCORRECT FEEDBACK: That's not it. Have another go.

The Armagh rail disaster in 1889 led to what? Choose the one correct answer.

More powerful locomotives were introduced.

Block system and signal interlocking became a legal requirement in the UK.

Railway lines were no longer constructed on slopes.

CORRECT FEEDBACK: That's it. After the 1889 disaster in which 80 people died, campaigners were successful in making the block system and interlocking a legal requirement.

INCORRECT FEEDBACK: That's not it. Have another go.

Match the description to the stage of learning.

Commented [MOU1]: MRQ

Commented [MOU2]: MCQ

Commented [MOU3]: MCQ

Commented [MOU4]: MATCHING

STATIC	DRAGGABLE
Unconscious Incompetence (Beginner)	Not knowing what the new skill involves or what the goals are. A lot of mistakes are made without realising.
Conscious Incompetence (Intermediate)	There's still much to learn, but aware of what there is to learn to improve. Many mistakes still made but with an awareness that they are mistakes.
Conscious Competence (Proficient)	A good grasp of the skill. Mistakes are few. But performing at a high level requires a significant effort and isn't intuitive.
Unconscious Competence (Mastery)	Very few mistakes made and understanding of the skill is in-depth. High-level performance is intuitive with much less conscious effort.
FEEDBACK ANY RESPONSE	Knowing the stages of learning gives you a better understanding of what stage you're at, so you can then identify your strengths, weaknesses and where you can improve without feeling discouraged.

USE MINDSET SORT FROM RISE COURSE 'LEARNING HOW TO LEARN', LESSON 2

Why does explaining what you've learned to someone else help you learn? Select the two correct reasons.

It transfers what you're learning into long-term memory.

There's a psychological reward in showing off new knowledge to others.

You can identify any areas you don't fully understand.

ANY RESPONSE FEEDBACK: Sharing your understanding with others as you're learning transfers what you're learning into long-term memory and helps you to identify any areas you don't fully understand. So have a conversation with your classmates and trainer to gain new insights and understanding of the material.

Commented [MOU5]: MRQ

Day 2 Your role as a signaller

Question of the day for Day 2 was What do signallers actually do? You explored what your day as a signaller might look like, and you also found out about the non-technical skills and the importance of these in developing your professional competence. Have a go at the questions below to refresh your memory and challenge yourself.

What one sentence can sum up the key purpose of the signaller's role?

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OPTION	BY CHOICE FEEDBACK
To ensure safe practice for work occurring on or near rail infrastructure.	That's not it. This is the purpose of a COSS. Have another go.
To to ensure the safe delivery of electrical power to the Railway Infrastructure	That's not it. This is the purpose of an ECO. Have another go.
To regulate the movement of trains on the railway.	That's it. In broad terms, the signaller regulates the movement of trains on the railway network.

Which of these activities are part of the signaller's daily life? Select all that apply.

Commented [MOU7]: MRQ

Monitor and coordinate the movement of trains

- Undertake technical inspections and investigations
- Ensure that power supplies are configured correctly

Communicate with train drivers and other railway personnel

Manage the track layout

ANY REPOSENSE FEEDBACK: The signaller is a key role in the smooth and safe running of the railway network. As a signaller, you will monitor and coordinate the movement of trains, communicate with train drivers and other railway personnel, and manage the track layout.

Match the method of operation with the type of signalling centre it's used in.

Commented [MOU8]: MATCHING

STATIC	DRAGGABLE
Lever frame box	push and pull mechanical levers
Power signal box	press buttons on a large control panel
Integrated electronic control centre (IECC)	use a keyboard and trackerball
ANY REPOSENSE FEEDBACK:	Although the different types of signal control centres, from the old lever frame boxes to the modern IECCs, have different methods of operation, the role of the signaller and the daily duties are the same.

What is the consequence of attending work whilst in an 'unfit state' due drugs or alcohol?

Commented [MOU9]: MCQ

Choose the one correct answer.

Being sent home

Gross misconduct

A warning

CORRECT FEEDBACK: That's it. If you turn up for duty in an unfit state due to drink or drugs, you are guilty of an offence, according to Section 27 of the 1992 Transport and Works Act.

INCORRECT FEEDBACK: That's not it. Have another go.

Which organisation holds Network Rail to account for the day-to-day running of Britain's railways? Choose the one correct answer.

The Rail Accident Investigation Branch (RAIB)

The Rail Safety and Standards Board (RSSB)

The Office of Rail and Road (ORR)

CORRECT FEEDBACK: That's it. The RAIB independently investigates accidents to improve railway safety and inform the industry and the public. The RSSB undertakes numerous safety-focused monitoring and continuous improvement programmes, and works with operators to identify and address risks.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU10]: MCQ

Which of these statements is true for the role of a signaller? Choose the one correct answer. Think about why.

OPTION	BY CHOICE FEEDBACK
It doesn't matter if you make a mistake.	That's not true. It's a safety-critical role where mistakes can have extreme consequences that can lead to the death or injury of passengers and staff. Have another go.
It can be quite mentally challenging.	This is very true. As a safety-critical role, the job of Signaller is highly pressurised and often involves making quick decisions in challenging situations with high stakes. Signallers also often work alone.
It's a job with a fixed timetable.	This isn't true for signallers. Your work pattern will be demanding as signallers typically work a range of shift patterns, which can include evenings, weekends and bank holidays.

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Which non-technical skill do the following behaviours demonstrate?

Taking personal responsibility, doing a good job every time, maintaining work standards, knowing your limits, delegating, asking for support.

Working with others

Conscientious

Controlled under pressure

CORRECT FEEDBACK: That's it. Being conscientious is important so rules are followed consistently. This systematic and thorough approach reduces complacency and removes the need for constant supervision.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU12]: MCQ

Which non-technical skill does the following behaviour demonstrate?

Gather information to build an accurate picture of what is going on.

Decision-making

Commented [MOU13]: MCQ

Workload management

Communications

CORRECT FEEDBACK: That's it. Decision-making is an important skill as timely, effective and considered decisions mean a safer and more efficient railway.

INCORRECT FEEDBACK: That's not it. Have another go.

How might you demonstrate Attention management?

Be actively vigilant and aware, even if not much is happening.

Prioritise: focus on doing one thing at a time. (No - workload management)

Step back: don't jump to conclusions. Act only after evaluating the issue. (No - Controlled under pressure)

CORRECT FEEDBACK: That's it. Good attention management leads to situational awareness, so you can ask What? So what? Now what?

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU14]: MCQ

Day 3: Controlling the railway

Day 3’s big question was What does fail to safety mean? You looked at lineside signals, absolute block, track circuit block and safety devices. Have a go at the questions below to refresh your memory and challenge yourself.

[picture/graphic of semaphore signal in ‘off’ aspect]

What instruction does this semaphore signal show?

Proceed

Proceed with caution

Stop

CORRECT FEEDBACK: That's it. This semaphore signal is in the ‘off’ aspect, which means ‘proceed’.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU15]: MCQ

[picture/graphic of colour light signal: Single yellow]

What instruction does this colour light signal show?

Proceed

Proceed but expect to have to start slowing down at the next signal

Proceed but slow down in anticipation of having to stop at the next signal

Stop

CORRECT FEEDBACK: That's it. This colour light signal is showing ‘Proceed but slow down in anticipation of having to stop at the next signal’.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU16]: MCQ

Match the definition on the left with the type of lineside signal on the right.

Automatic signal	A signal operated by the passage of trains. The signaller or a person operating a signal post replacement switch can place some automatic signals to danger.
Controlled signal	A signal operated by the signaller, some of which may be set by the signaller to work automatically
Semi-automatic signal	A signal normally operated by the passage of trains, but can also be controlled from a signal box or a ground frame, or by a person operating a signal post replacement switch.
Intermediate block home signal	A stop signal that controls the exit from an intermediate block section, and the entrance to an absolute block section or another intermediate block section.
ANY REPOSE FEEDBACK:	Good work! And remember that as technology continues to evolve, lineside signalling is being replaced by modern in-cab systems that

Commented [MOU17]: MATCHING

	provide information to the driver on displays in their train cab.
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In an Absolute Block system, what is a Home signal? Choose the one correct answer.

Commented [MOU18]: MCQ

It controls the entrance to an absolute block section or an intermediate block section.

The first stop signal controlled by a signal box that controls the exit from an absolute block section.

The point beyond the home signal up to which the line must be clear before a train can be accepted.

CORRECT FEEDBACK: That's it. The other two definitions are for an Intermediate block home signal and a Clearing point.

INCORRECT FEEDBACK: That's not it. Have another go.

Technically, in a track circuit block electrical circuits in the running rails detect the presence of vehicles within a portion of track." What's the missing word?

Commented [MOU19]: MCQ

presence

absence

ANY RESPONSE FEEDBACK: Each section of the railway forms part of an electric circuit, which runs a current from one rail to the other through a relay. When a train runs on a section, it causes the current to bypass the relay; the signalling system registers when the circuit is running through the relay and so confirms that no train is present.

Do you remember key features of the different safety devices? Sort the functions into one of the categories.

Commented [MOU20]: SORTING ACTIVITY

Interlocking	Train detection	Warning systems
Prevents operation in an unsafe sequence	Checks that a section of track is clear of vehicles before a train is authorised to pass	Activates an audible alarm and a visual indicator in the driver's cab
Stops equipment beyond a stop signal from being moved	Counts the number of axles that enter and leave the block section	Uses trackside equipment to monitor the train's speed and position
Holds equipment in a safe position while a block is occupied	Recognises when a train axle has passed a particular location	

Day 4: Equipment and information

On Day 4, we challenged you to answer the question How does a signaller keep track of the trains in their area of control? You learnt about equipment, bell signals, rules and regulations and the importance of an effective shift handover. Have a go at the questions below to refresh your memory and challenge yourself.



What equipment is this?

NX panel reminder collar

Ground frame release

Block instrument reminder

CORRECT FEEDBACK: That's it. This is an NX panel reminder collar used in a Power signal box.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU21]: MCQ



What equipment is this?

Block shelf equipment

Ground frame release

Block instrument reminder

CORRECT FEEDBACK: That's it. This is a block instrument reminder used in a Level frame signal box.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU22]: MCQ

[image of Train movement viewer]

What equipment is this?

NX panel

Train movement viewer

GSMR

CORRECT FEEDBACK: That's it. This is a train movement viewer used in a Lever frame signal box.

INCORRECT FEEDBACK: That's not it. Have another go.

THE 4 Bell signals Qs - ALREADY IN RISE Put one here and there in between the other Qs rather than in one group

Where would you look to find out the speed of the track in your area of control? Choose the one correct answer.

GE/RT8000/G1 Rule Book

NR/OPS/NOI National Operating Instructions

Sectional Appendix

CORRECT FEEDBACK: That's it. Details of running lines (another name for the track), including the speed, are found in the sectional appendix along with other information.

INCORRECT FEEDBACK: That's not it. Have another go.

Where would you look to find out about what engineering works are going on today?

Choose the one correct answer.

Sectional Appendix

Periodic Operating Notice

Weekly Operating notice

CORRECT FEEDBACK: That's it. Engineering arrangements are published weekly, along with safety notices, temporary speed restrictions, signalling and permanent way alterations and general instructions and notices.

INCORRECT FEEDBACK: That's not it. Have another go.

You've recorded an unusual incident in the Occurrence book. As well as the time when the train passed the signal box, you've recorded the time you sent and received the bell signals. What kind of line are you on? Choose the one correct answer.

A track circuit block line

An absolute block line

A tokenless block line

CORRECT FEEDBACK: That's it. On absolute block and electric token block lines, unless otherwise shown in the Signal Box Special Instructions, you must record the time at which all bell signals are sent and received and the time at which trains arrive, or depart from the signal box.

INCORRECT FEEDBACK: That's not it. Have another go.

What are some key questions to bear in mind to make shift handovers more effective?

Select all that apply.

- Have any problems been resolved?
- **Are there any outstanding faults or failures?**
- **Is there a written (and legible) record of what has happened in the last shift?**

Commented [MOU23]: MCQ

Commented [MOU24]: MCQ

Commented [MOU25]: MCQ

Commented [MOU26]: MCQ

Commented [MOU27]: MRQ

- **How is the train service?**
- Who was responsible for any incidents that occurred?

ANY REPOSE FEEDBACK: The handover of duty is a safety-critical moment and is perhaps the most susceptible to distractions. So it's crucial to not lose concentration during this process and ensure that all safety critical information is exchanged between the person going off and signing on duty.

TEA is a good reminder to make sure your shift handovers are safe and effective. What does TEA stand for?

Trains? Equipment? Anything else?

Tonight? Earlier? Alright?

Track? Electrics? Anything else?

CORRECT FEEDBACK: That's it. You need to know about the trains – how the service is. You need to know about the equipment – are there any possessions, electrical isolations, faults or failures. Anything else might include any reminder appliances, and the written record of what's been going on.

INCORRECT FEEDBACK: That's not it. Have another go.

Commented [MOU28]: MCQ

Day 5: Communication

The focus on Day 5 was safety-critical communication and the question How do signallers talk to their colleagues on the railway? There was learning about telecoms on the railway and GSM-R, and some key techniques we use to minimise communication errors. Have a go at the questions below to refresh your memory and challenge yourself.

11Q quiz already built - add these flip cards x 3 sections scattered in between other Qs

Test yourself on the phonetic alphabet with these flashcards. See if you can remember the word used for the letter before flipping the card over.

Commented [MOU29]: Flashcard STACK

FRONT	BACK
F	foxtrot
V	victor
O	oscar
B	bravo
M	mike
H	hotel
T	tango
A	alpha
Y	yankee

Test yourself on the phonetic alphabet with these flashcards. See if you can remember the word used for the letter before flipping the card over.

Commented [MOU30]: Flashcard STACK

FRONT	BACK
K	kilo
P	papa
E	echo
G	golf
N	november
I	india
U	uniform
X	xray
D	delta

Test yourself on the phonetic alphabet with these flashcards. See if you can remember the word used for the letter before flipping the card over.

Commented [MOU31]: Flashcard STACK

FRONT	BACK
L	lima
C	charlie
S	sierra
Z	zulu
R	romeo
W	whiskey
J	juliet
Q	quebec