Progression toolkit: Transmitting Electricity

Learning focus	Transmission lines dissipate less power when they transfer power with a higher transmission voltage and lower current. When current is lower there is a smaller drop in voltage along their length.				
As students' conceptual understanding progresses they can:	CONCEPTUAL PROGRESSION →				
	Describe the heating effect of current on a conducting wire. **P**	Predict changes to current through transmission lines using P = I x V.	Calculate power dissipated by a wire using $P = I^2 \times R$.	Explain the difference between transmission voltage and voltage drop along a wire.	Explain how the equation $P = V^2/R$ applies to transmission lines. **B**
Diagnostic questions	Hot line	Transmission current	Power dissipation	The right voltage	The right power
Response activities		Transmission lines		Talking volts	

Key:

P Prior understanding from earlier stages of learning

B Bridge to later stages of learning

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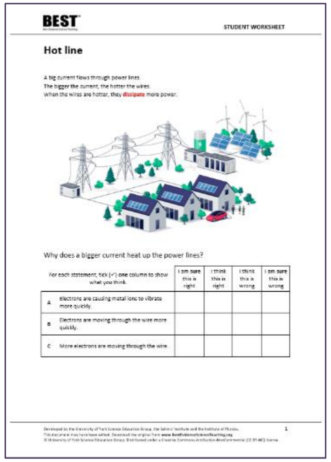
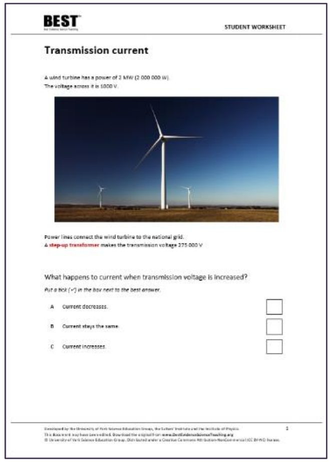
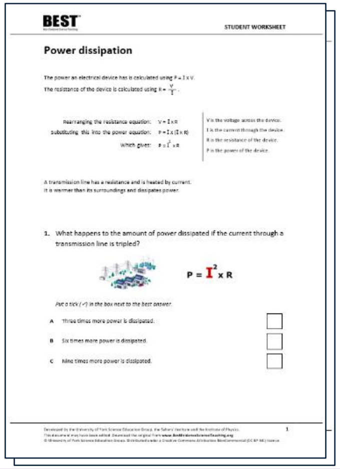
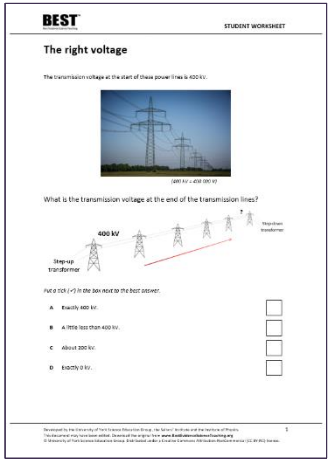
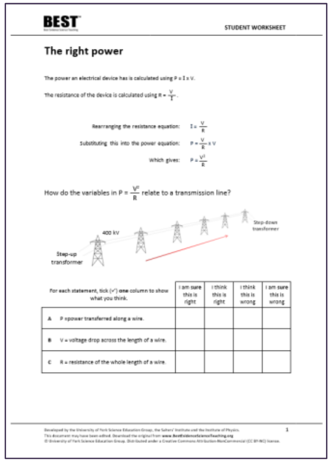
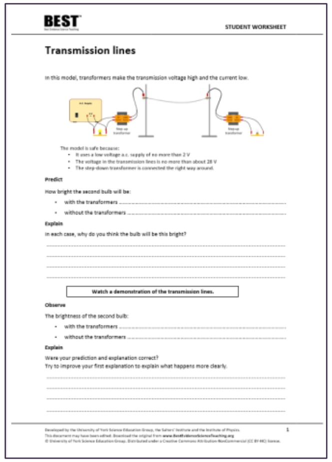
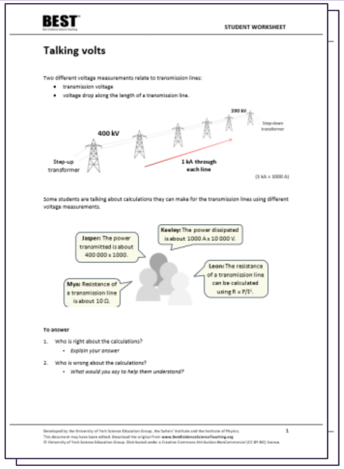
Hot line	Transmission current	Power dissipation	The right voltage	The right power
				
Confidence grid	Simple multiple choice	Simple multiple choice	Simple multiple choice	Confidence grid

Transmission lines	Talking volts
	
PEOE Predict, explain; observe, explain	Talking heads