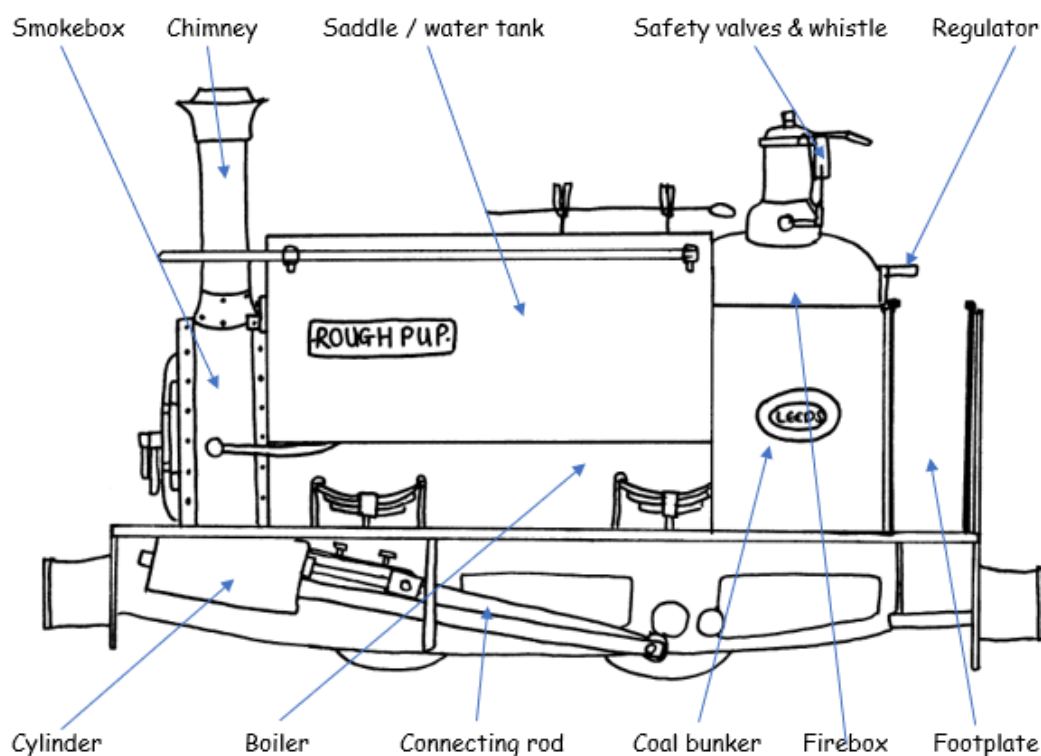


Here is a picture of "Rough Pup" for you to colour in. Can you solve this riddle to find another word for the colour scheme of an engine [and carriages and trucks]?

1. My first is in **Colour** but not in **Occur** _____
2. My second is in **Times** but not in **Steam** _____
3. My third is in **Varnish** and in **Remove** _____
4. My fourth is in **Shade** but not in **Dashing** _____
5. My fifth is in **Rail** but not in **Jail** _____
6. My sixth is in **Yacht** but not in **Watch** _____

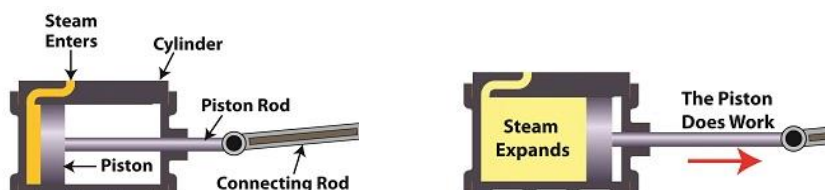
"Rough Pup" is an 0-4-0ST locomotive. That means that it has no carrying wheels at the front; four driving wheels and no carrying wheels at the back. ST means that the water is carried in a Saddle Tank that fits over the boiler, just as a saddle fits over a horse.



How does a steam engine work?

Watch your kettle at home. When water boils, steam is made. On a steam engine, water in the boiler is heated by a fire. Coal is shovelled from the bunker into the firebox to create heat. When the regulator is opened, steam passes from the boiler into the cylinder.

In the cylinder is a piston, which the steam moves backwards and forwards. This in turn moves the connecting rod which turns the wheel.



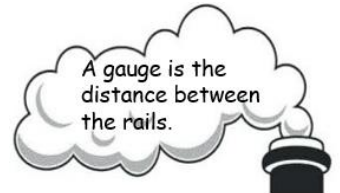
The history of "Rough Pup"

"Rough Pup" was built by a company called Hunslet in Leeds in 1891. It worked at the Dinorwic slate quarry at Llanberis in North Wales. It now lives in the Narrow Gauge Railway Museum in Tywyn.

Challenge 1: How old is "Rough Pup"? (Remember we are in 2021 this year)

Challenge 2: Can you find **Leeds**, **Llanberis** and **Tywyn** in an atlas? Which is nearest to your home?

The Dinorwic engines had a gauge of 1 foot 10 $\frac{3}{4}$ inches. This is the same as 57.79cm. The Talylyn Railway gauge is 2 foot 3 inches (68.58cm) and the Standard Gauge used on Britain's main line railways is 4 foot 8 $\frac{1}{2}$ inches (143.51cm).



Challenge 3: Using a ruler or tape measure, can you measure out the gauge of these railways on your floor? Measure your own height. Are you taller or shorter than Standard Gauge? What can you find in your house that is the same size as Dinorwic gauge? Do you have anything Talylyn gauge size?

What's in a name?



"Rough Pup", like several of the Dinorwic engines, was named after a racehorse.

Can you find the names of these Dinorwic engines in the grid below? Can you find one that is in the grid twice and the one that is not in the grid at all? Words go across, down or diagonally.

Rough Pup Red Damsel Cloister Bernstein Covertcoat Wellington
 Holy War Maid Marion Irish Mail Wild Aster Alice Velinheli
 King of the Scarlets George B Lady Madcap

D	C	B	A	R	E	D	R	U	M	O	F	A	I	N	T	R	E	E
E	F	G	E	O	R	G	E	B	A	D	F	G	H	H	J	K	L	Z
S	H	I	J	U	Q	W	E	R	T	Y	U	I	O	O	P	A	S	D
E	K	I	N	G	O	F	T	H	E	S	C	A	R	L	E	T	S	Y
R	L	M	N	H	X	C	V	B	N	M	L	A	D	Y	F	O	O	L
T	S	R	A	P	F	B	E	R	N	I	O	R	T	W	K	E	R	Q
O	O	P	Q	U	E	E	N	G	C	W	I	L	D	A	S	T	E	R
R	V	E	L	P	E	R	E	E	L	O	S	M	I	R	T	H	D	Y
C	W	X	Y	Z	E	N	L	O	O	E	V	A	L	L	A	N	D	R
H	I	E	O	U	H	S	I	R	I	W	E	E	I	W	I	L	A	R
I	W	I	L	L	K	T	A	G	S	E	L	D	R	E	D	D	M	A
D	C	B	L	L	S	E	U	E	T	E	I	M	I	T	A	L	S	U
A	R	K	L	E	I	I	O	B	E	L	N	A	S	T	C	Y	E	Q
H	U	N	S	L	E	N	T	B	R	I	H	R	H	I	Y	O	L	W
C	L	A	S	S	H	E	G	A	R	B	E	S	M	N	F	U	A	E
P	E	N	R	H	Y	N	S	T	E	U	L	T	A	G	S	O	P	T
W	A	L	C	Y	M	R	I	S	O	J	I	A	I	T	E	R	R	P
L	A	D	Y	M	A	D	C	A	P	N	O	R	L	A	E	N	D	O