



Crumbling Chines!

There are some 22 chines around the coast of the Isle of Wight, mostly on the south and south-west coastlines. In this study you are going to be learning:

- ✓ What a chine is
- ✓ How chines form
- ✓ What the main features/characteristics of chines are
- ✓ How chines change over time, and how human have used them: in the past and at present.

The following pages contain a lot of information about chines, as well as some pictures to help you to 'visualise' them.

You should use the information provided, along with your own observations and discussions with your teacher to complete the activity on page 4.

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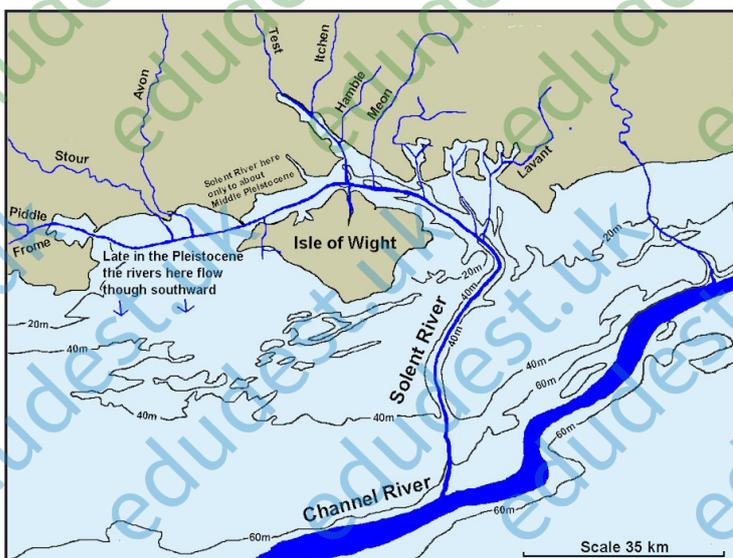
The word 'ch' Curriculum relevant materials supporting school trips to the Isle of Wight
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Isle of Wight.

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If you look at this picture of Whale Chine (right), you will see that it does, indeed, look like a 'gap' in the cliffs. You can probably see the small river in the picture at the bottom of the chine running out to sea?



Most of the chines on the Island are river valleys where a river flows through the coastal cliffs to the sea, although some are now 'dry' as their river has been diverted elsewhere.



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Chine creation...

Three things are responsible for the formation of chines:
Rising sea levels, coastal erosion and river erosion...

1. Rising sea levels: Standing on the cliffs on the south-west coast of the Isle of Wight thousands of years ago, you would have seen dry land rather than the sea, and the Solent River flowed through this area.

The map shows what it might have looked like.

The rivers on the south-west coast of the Isle of Wight would have flowed a long way out to join the Solent River.

When the huge ice sheets melted at the end of the last ice age, the sea levels rose and the Solent and Channel were flooded. The rivers now had a much shorter distance to go.

2. Coastal erosion: Looking carefully at the cliffs in this part of the Island, you will notice that they are not very stable. You may even see evidence of mass movement (this is where a rockfall, landslide or mudslide has occurred).

The cliffs are made of sands and clays which are soft rocks and are easily eroded by the sea.

This coast is exposed to south-westerly winds – our prevailing (most common) wind direction in the UK. The wind blows over a long distance (called the fetch), and this leads to powerful, high energy waves, which batter the soft cliffs.

The cliffs are retreating or receding (gradually moving backwards, inland). This shortens even further the distance that the rivers have to go before reaching the sea.

3. River erosion: The rivers along the south-west coast start on the *downs* which form the 'spine' of the Isle of Wight, further inland from the sea – can you see them? It is only a short distance from this high ground to the sea, and the rivers must reach sea level quickly. In order to do this, they erode down into their beds vigorously, and create steep valleys.

It is a combination of all of these things that have led to the development of the chines; sea level rise vastly shortened the distance that the rivers had to travel before they reached the sea, and rapid erosion of the soft cliffs means that they are retreating and making this distance shorter all the time!

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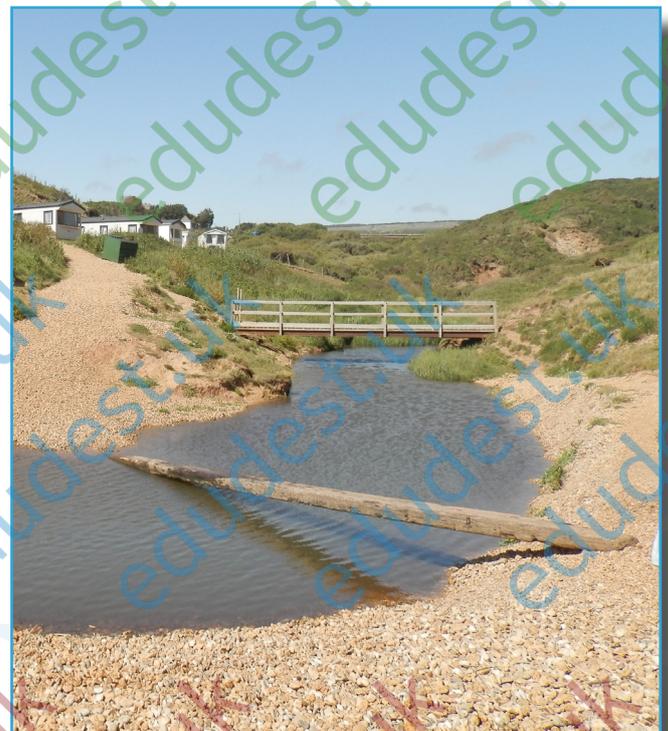
To complete this unit, visit www.edudest.com to find a range of resources that will help you to develop your understanding of the river valley. Curriculum relevant materials supporting school trips to the Isle of Wight

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Generally chines have steep(ish) sides and a www.edudest.uk form a gap in the soft cliffs. However, they vary vastly and each has its own character.

Whale Chine is gorge-like, while others are far gentler. Grange/Marsh Chine is the largest on the island and is where two rivers meet and flow out to sea in a larger river. The slopes are quite heavily vegetated.

Look at the two photos below to see the differences between these two chines:



Chines through time...

The chines on the Isle of Wight have a colourful past and a tale or two to tell!



Smuggling! Chines were a popular location for smuggling, with their safe sandy beaches to land on and their valleys providing a sheltered and secluded route inland. It was once big business on the Island, with the squires, wealthy farmers and estate owners organising the 'dodgy deals'!

Shipwrecks! The south-west coast of the Island is exposed and the waters can be treacherous, and the coast is dotted with countless shipwrecks. At the foot of Whale Chine, on a calm, clear day, the boilers of the *Cormorant* Steam Ship can be still be seen. It ran aground in thick fog on 21st December 1886 and, over the next two years, Islanders stripped her of her cargo and sold it.

Saving! The large number of wrecks led to three lifeboat stations being set up and the boats were rowed out in terrible conditions. The lifeboat stations have now closed.

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for enemy troops to land and swarm ashore, so fortifications were built at some of the most vulnerable chines to protect against this. The steep gorge of Shanklin Chine was used as an assault course to train commandos, and a secret pipeline was laid through the chine and under the Channel to carry fuel to the D-Day landing beaches in France.

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Today modern technology means that shipping is safer and shipwrecks are, thankfully, very rare. The days of smuggling are in the past (or are they?!) and we are at peace rather than war. So, what are the chines used for today?

Well, **fishermen** still use them to launch boats as they provide access to the beach from the cliff top.

Equally, they provide easy access points for **tourists** and **visitors**, who want to go to the beach go surfing, or fossil hunt along the beaches of the south west.

Settlements have grown up over time around some of the chines, e.g. Brook, and others have campsites/caravan/holiday parks for tourists, e.g. Grange Farm at Grange Chine (pictured). The chines provide shelter along an otherwise exposed coastline and birds, insects and a wide range of wildlife thrive in them, making them popular with naturalists and bird-watchers.



The future of the chines is uncertain. They are dynamic, ever-changing features and continued coastal erosion and rising sea levels could mean that some disappear altogether, while others may develop as new streams cut valleys into the soft rocks.

Summary Activity

Now you are going to summarise everything that you have learnt!

In the frame provided below, or on your own sheet of paper, you should sketch the chine that you are looking at.

Then, using a different colour for each, you should add labels and detailed annotations (with full explanations) around your sketch covering each of the bullet points on page 1 & 2 (also in the key!). Don't forget to complete the key to show which colour represents each aspect!



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Key

What a chine is

How chines form

Key characteristics / features

Human uses - past

Human uses - present

Chines of the Isle of Wight

1 Small Hope

2 Shanklin

3 Blackgang

4 Blackgang

5 New

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