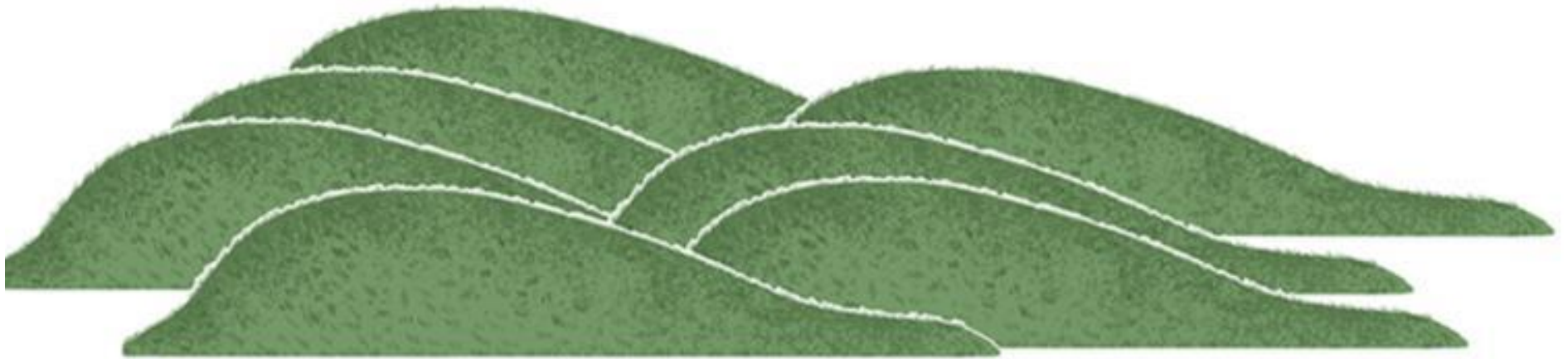


# Drumlins



Studying their effects on the landscape

# True or False

Instructions: Read the statements and use your knowledge to decide if the statement is true or false.

|                                                                                  |   |   |
|----------------------------------------------------------------------------------|---|---|
| 1. Till is sediment deposited directly by a glacier.                             | T | F |
| 2. The birthplace of a glacier is called a corrie.                               | T | F |
| 3. The Irish landscape shows evidence of four periods of glacial advance.        | T | F |
| 4. Drumlins, moraines, fjords and eskers are all features of glacial deposition. | T | F |
| 5. The Munsterian Glaciation began in Ireland about 175,000 years.               | T | F |

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| 5. The Munsterian Glaciation began in Ireland about 175,000 years.               | T | F |

# Learning Intentions

Students will be able to:

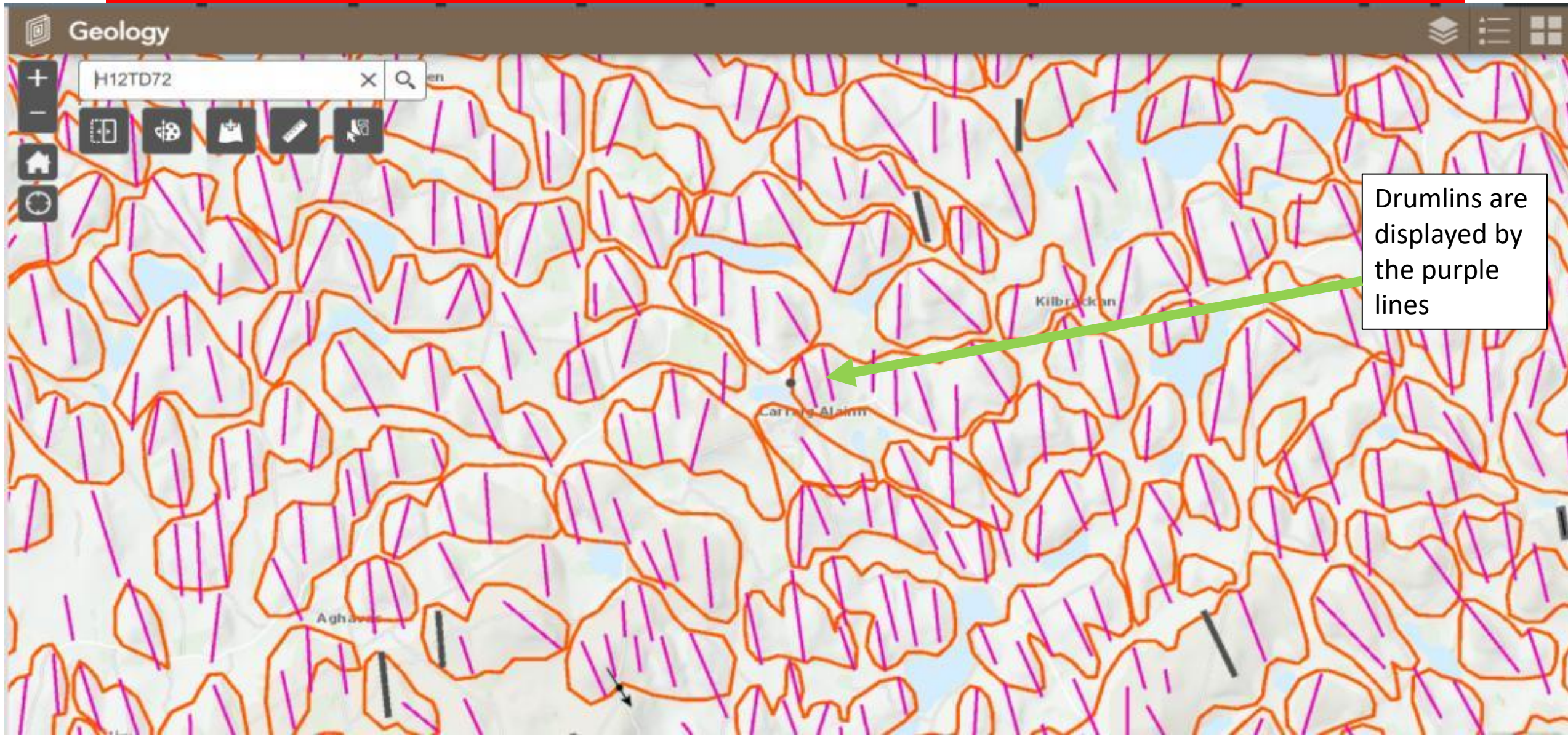
- **Navigate** the [www.gsi.ie](http://www.gsi.ie) and [www.maps.scoilnet](http://www.maps.scoilnet) websites
- **Recognise** and **locate** drumlins on OS maps
- **Explain** the formation of drumlins
- **Locate** place names suggesting drumlins
- **Explain** why roads twist and bend in drumlin regions
- Recognise drainage patterns associated with drumlins on OS maps
- **Look** at the type of farming practiced in drumlin regions.



# keywords

- Drumlins
- Stoss slope
- Lee slope
- Unstratified
- Boulder clay
- Eustatic movement
- Deranged drainage
- Pastoral farming

# Find your own area on the GSI website





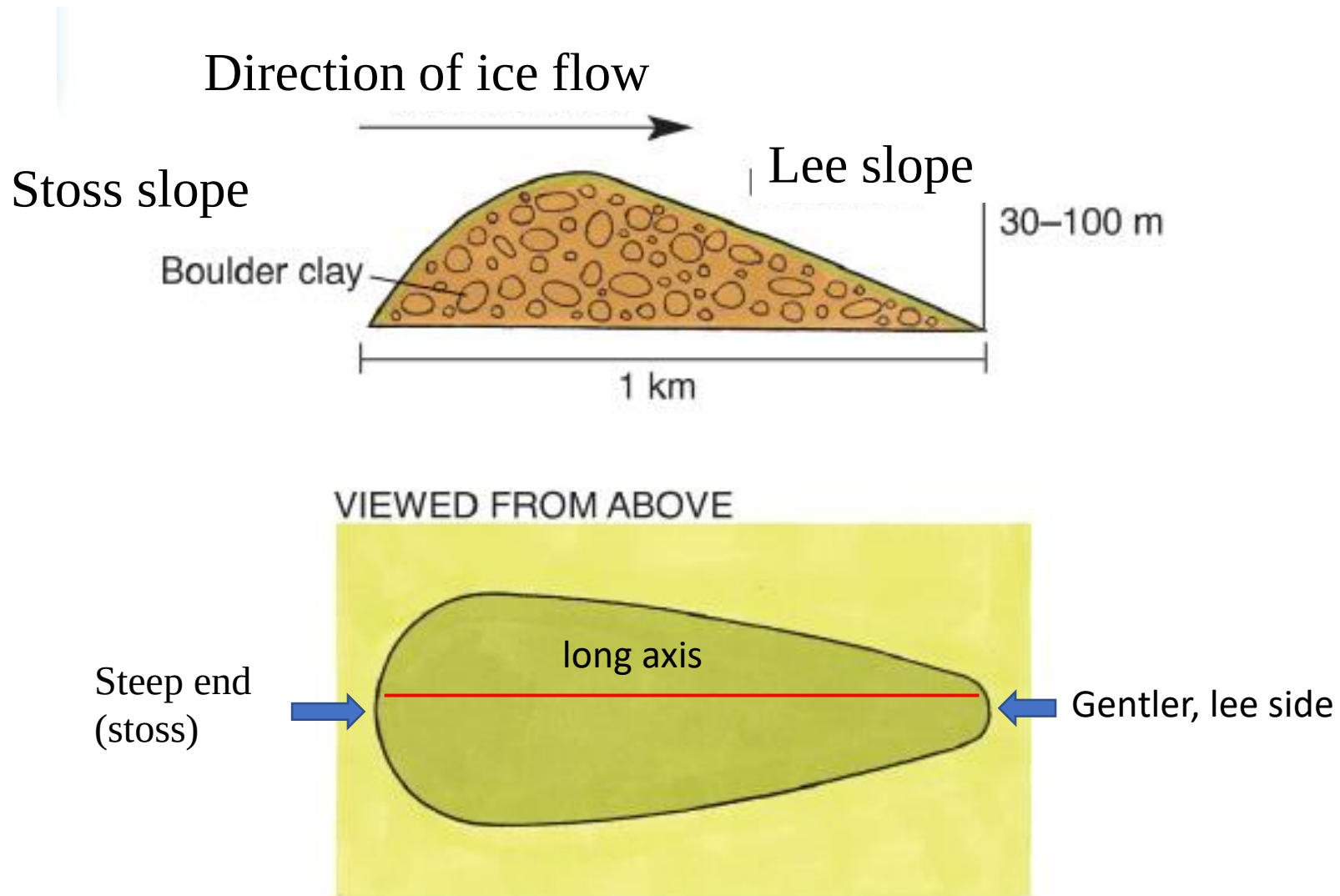
# Drumlins

- **Description**
- A oval-shaped hill consisting of boulder clay.
- 25-100 metres high, half a kilometer in width and over 1 kilometer in length.
- Has a steep slope called the stoss which faces the direction of the ice movement.
- Has a gentle slope called the lee.
- Consists of unstratified material(boulder clay)
- Occur in swarms or clusters
- 'Basket of eggs' topography
- **The term "drumlin" is derived from Gaelic which means small hill.**

# Photos of drumlins



# Diagram of a drumlin



# Formation

- Glacial ice deposits **boulder clay** into irregular heaps.
- The boulder clay is **unstratified** material and impermeable.
- The ice retreats and then advances again.
- This time the ice shapes and smooths the boulder clay into rounded oval-shaped hills.
- Drumlins show the direction of glacial movement.
- The steep slope of the drumlin is the direction from which the ice advanced.
- The gentle slope points to the direction in which the ice was travelling.

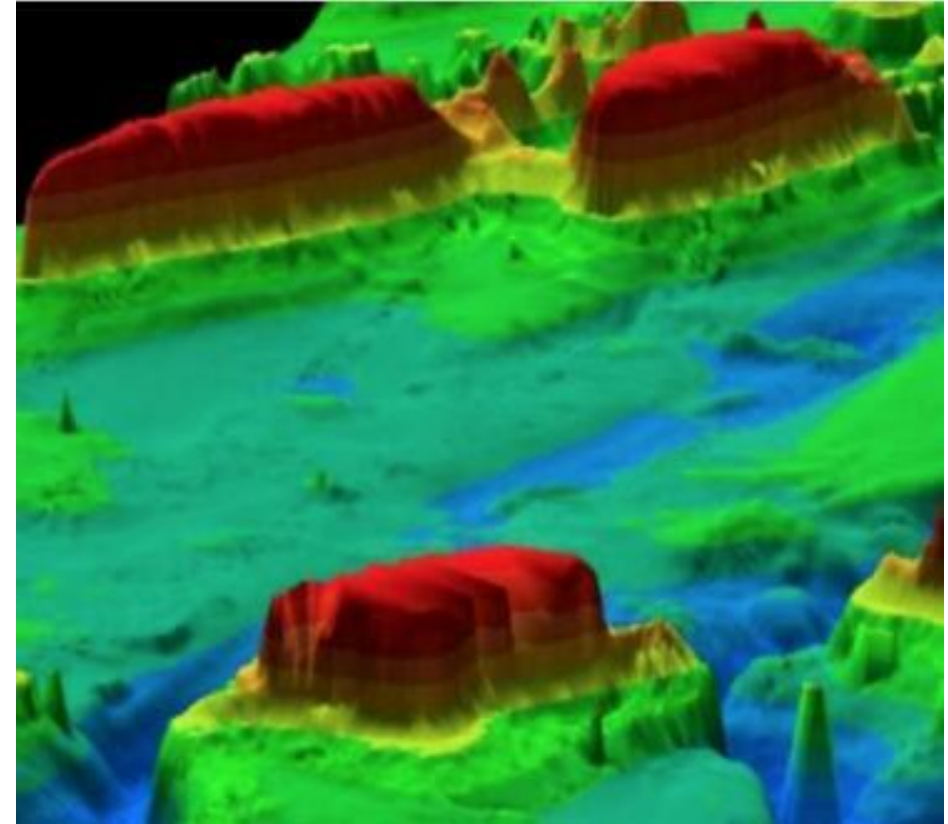
# Drowned Drumlins

- Drowned drumlins were created, as seen here in Clew Bay, when the ice melted **at the end of the last ice age some 10,000 years ago**, causing sea levels to rise (**eustatic movement**). The drumlins appear as low islands surrounded by seawater.



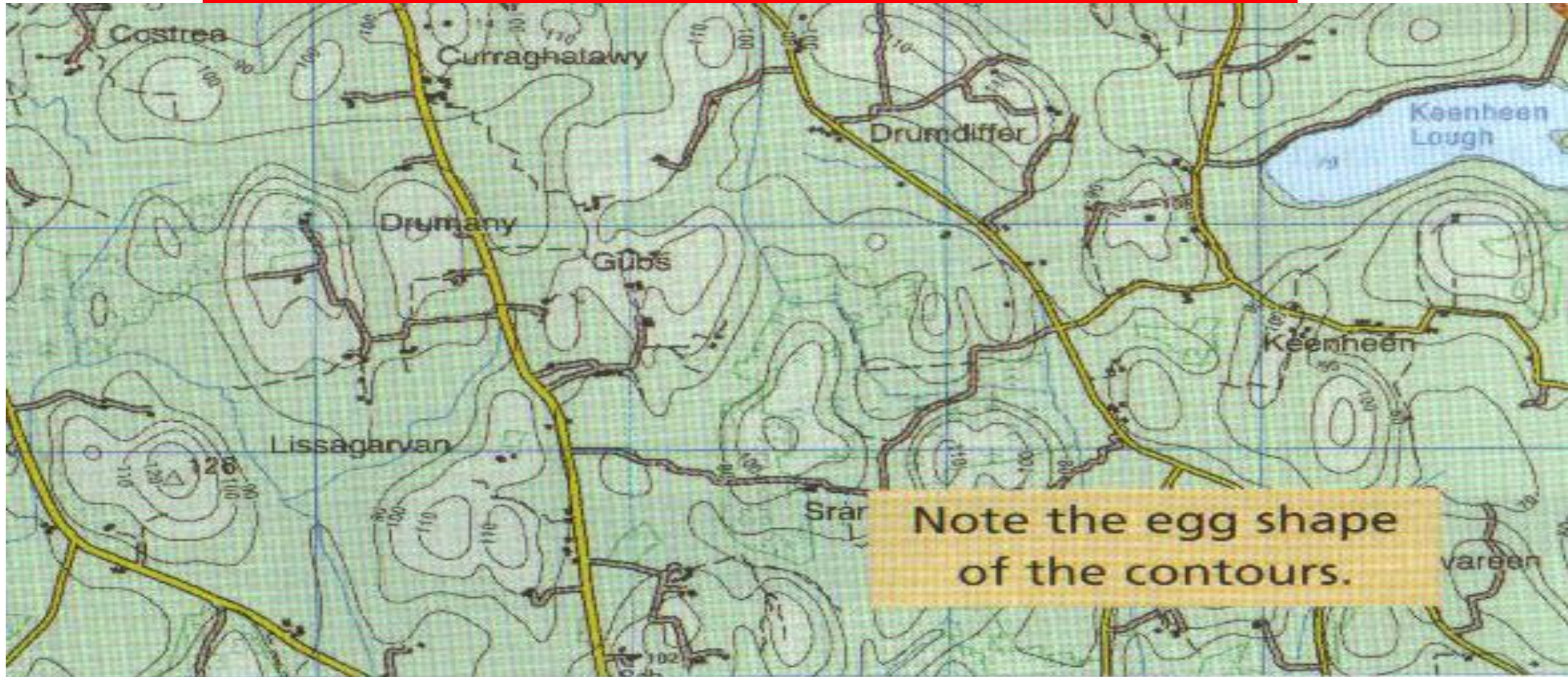
# Drowned Drumlins

- The image shows drumlins that were deposited by a glacier in the waters of Clew Bay.
- The blue on the image indicates deeper water and the lighter colours from yellow to red show shallower waters.

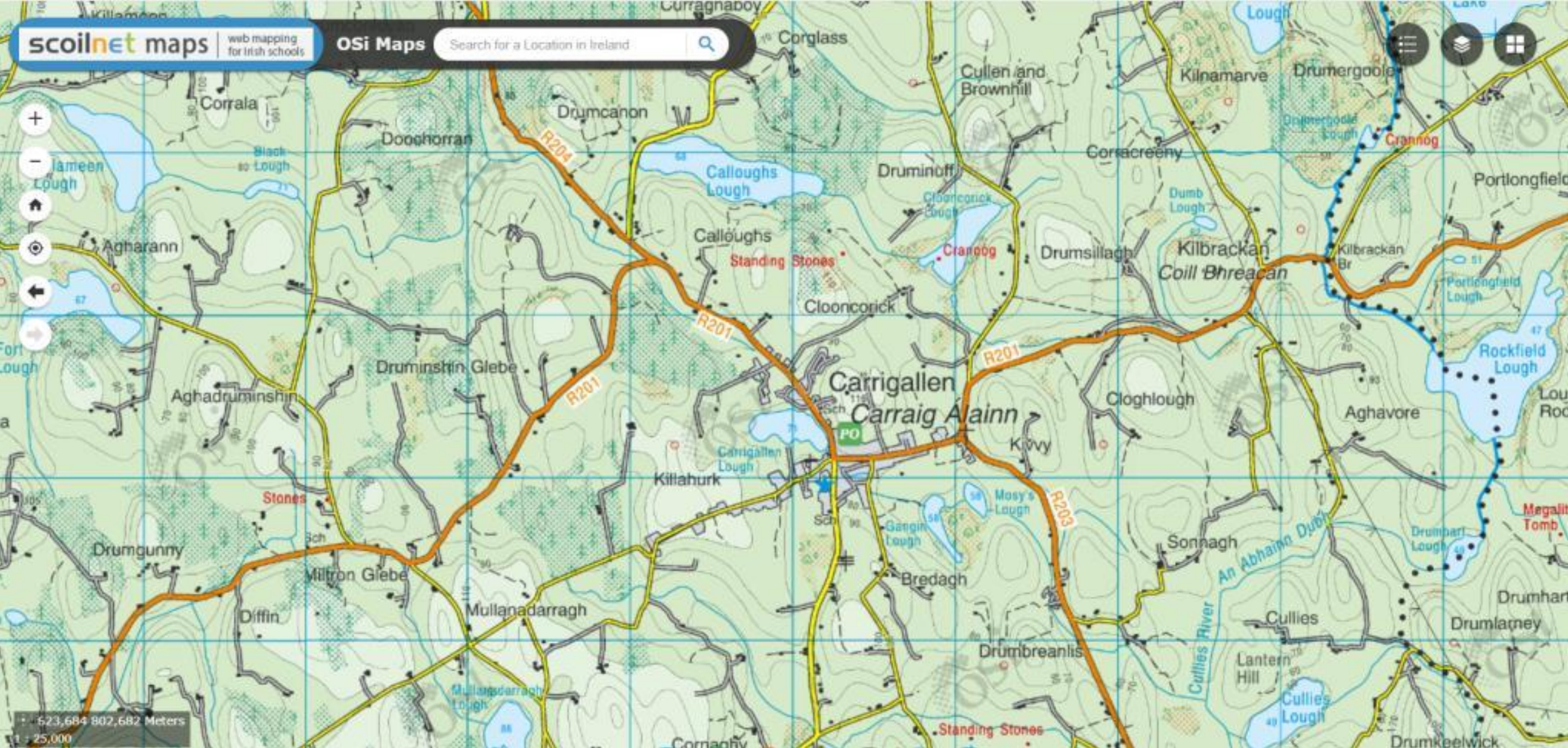


This image was collected by INFOMAR using bathymetric (measuring water depths) imagery.

# Recognising drumlins on an O.S. map



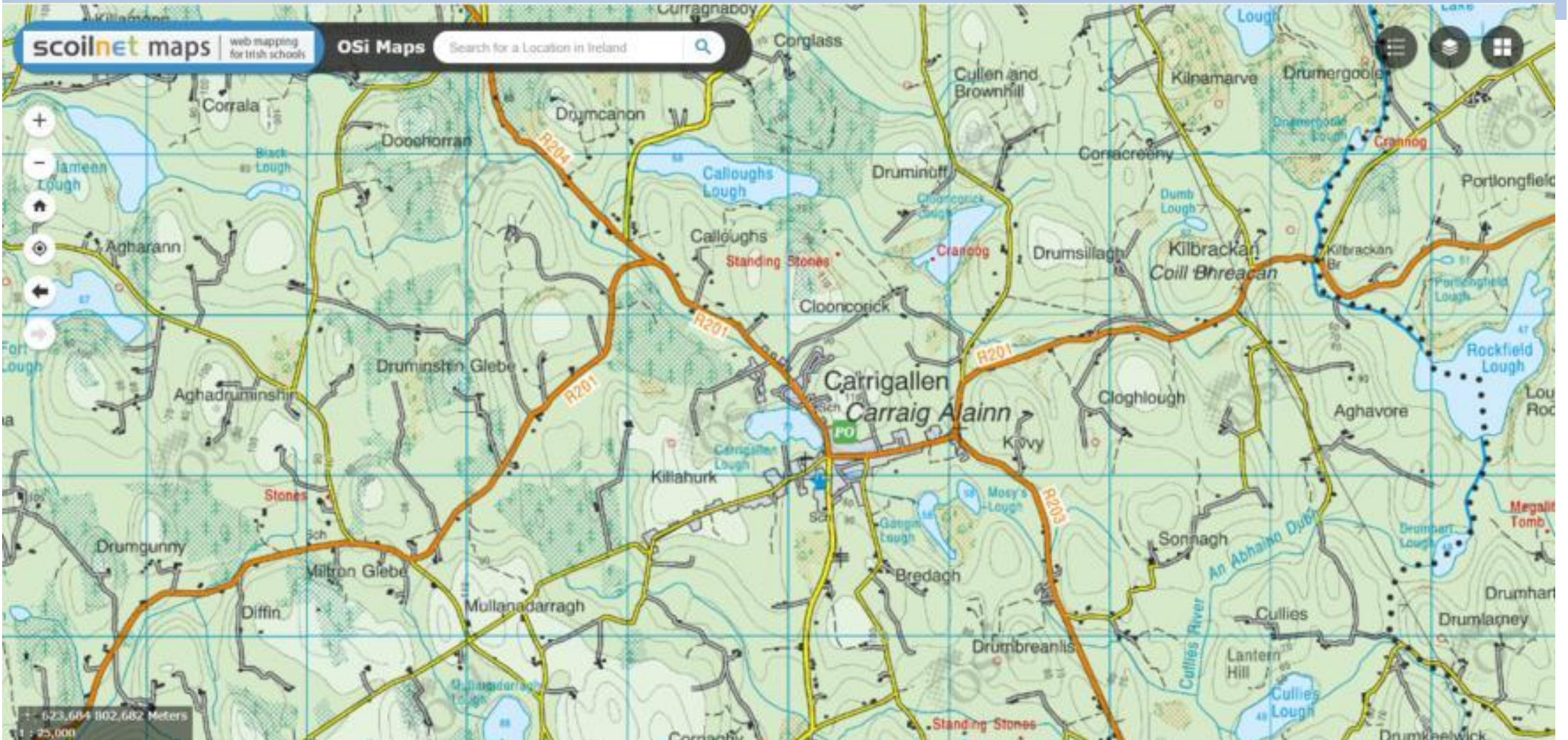
Drumlins in Cavan



- Drum, Drom, Droim, Drim = hillock (drumlin)



# Transport



The R201 is a good example of how the road network has been influenced by drumlins. It follows a long winding route to avoid drumlins.

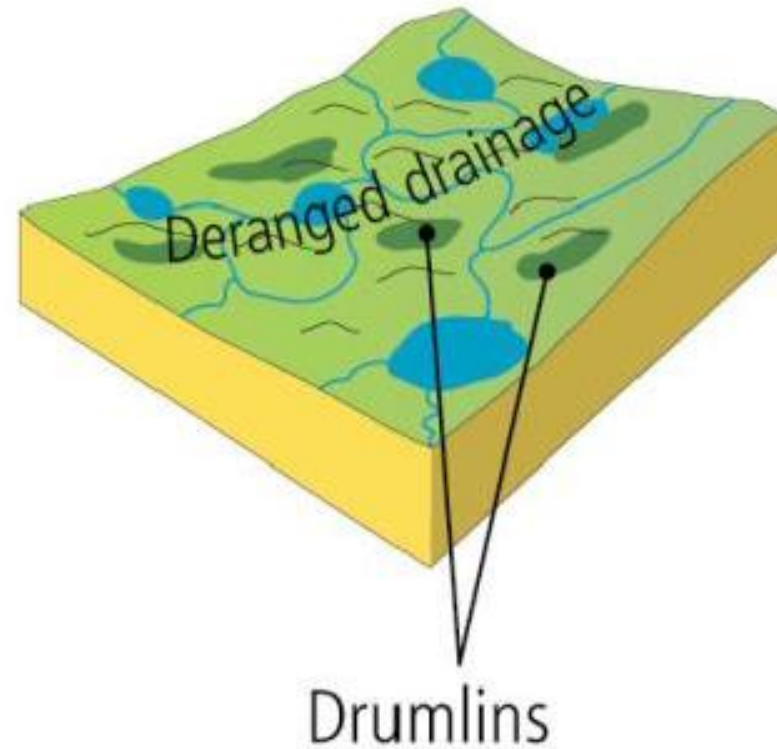
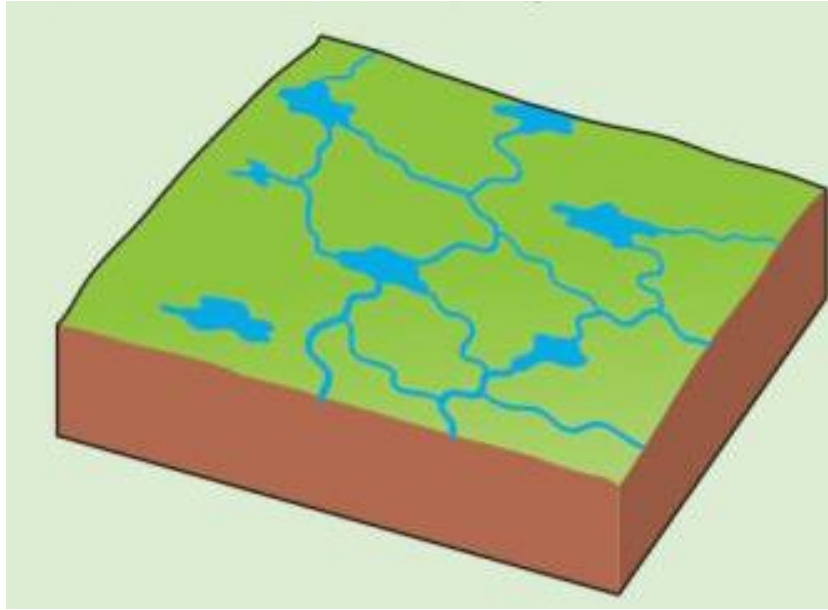
# Drainage Patterns

- 4 types of drainage patterns
  - 1. Dendritic
  - 2. Radial
  - 3. Trellised
  - 4. Deranged

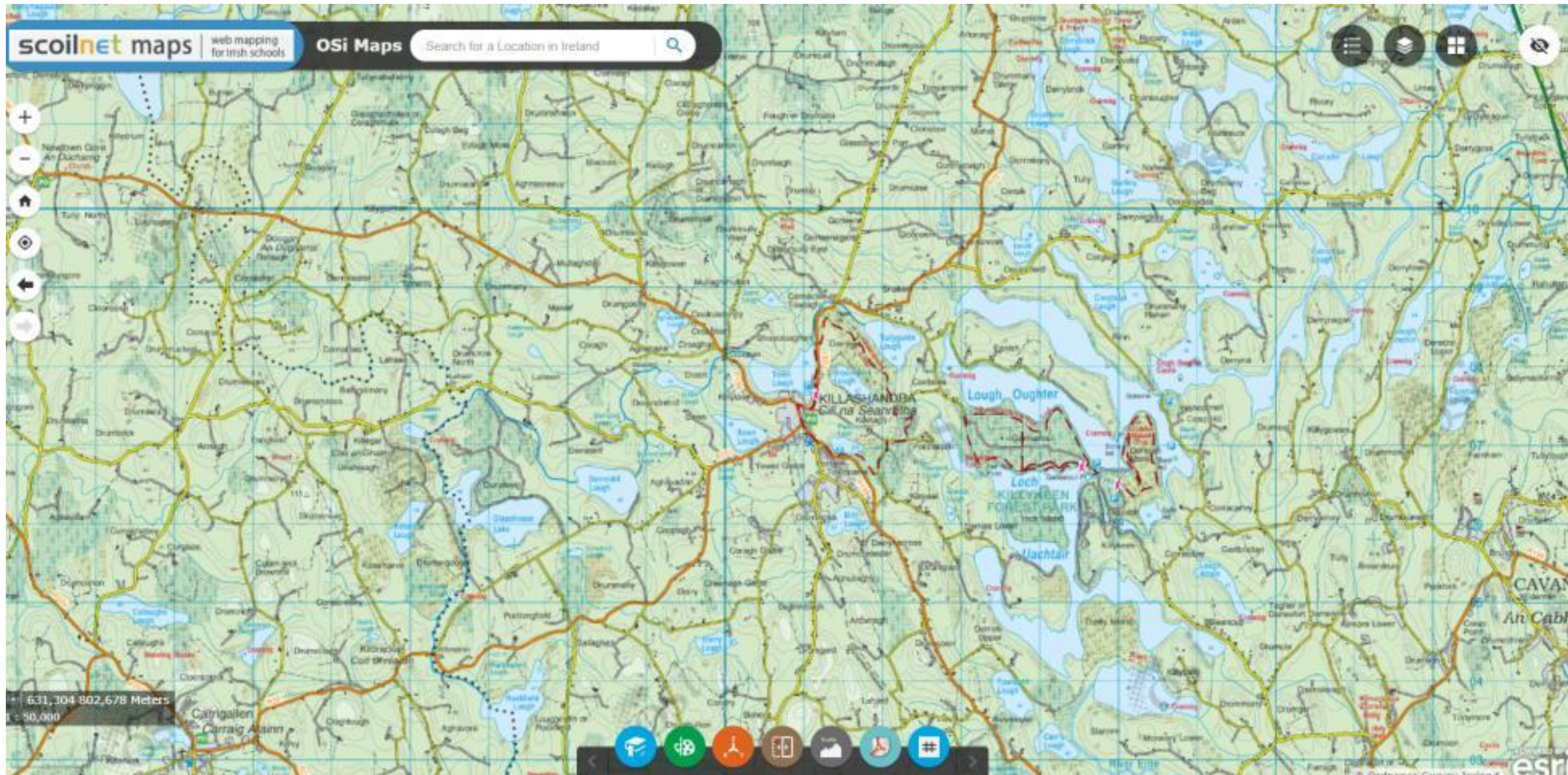
# Deranged drainage pattern

- Deranged drainage pattern occurs where glaciation has affected the landscape.
- Drumlins may impede drainage. Trapped water ranging from pools to oddly shaped lakes.
- Rivers have no definite pattern, they are irregular in appearance.
- Rivers flow in a deranged pattern between the drumlins of Cavan, Leitrim and Monaghan

# Deranged drainage pattern in diagrams

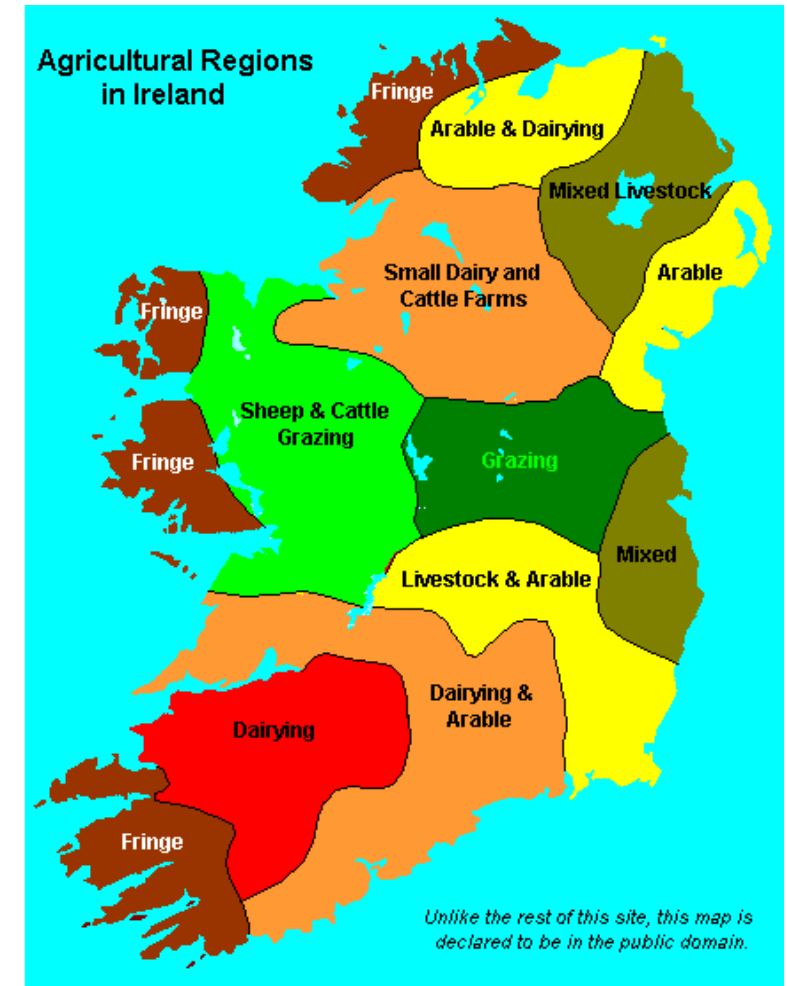


# Deranged drainage patterns occurs in the Killeshandra area of Cavan



# Agriculture

- The material deposited by ice is unstratified and impermeable.
- Suitable for pastoral farming.
- Dairy and beef farming is practiced in Cavan and Leitrim.





## Keywords Explained

- **Stoss slope:** is the steep side which faces the direction of the ice movement.
- **Lee slope:** is the gentle side which is lower in height.
- **Boulder clay:** is material deposited by ice over a large area. It is an unsorted mixture of fine clay and large rocks called boulders. Boulder clay is very fertile.
- **Deranged drainage:** occurs when rivers have no definite pattern, they are irregular in appearance.

# Learning Intentions

Students will be able to:

- Navigate the [www.gsi.ie](http://www.gsi.ie) and [www.maps.scoilnet](http://www.maps.scoilnet) websites
- Recognise and locate drumlins on OS maps
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Past questions on drumlins



- Name the feature of glacial deposition found in grid square M 94 95.
- Examine the long axis trend of the feature named in the part above. From which direction did the ice sheet originate?



Identify the drumlin in the aerial photo of Carrick-on-Shannon.