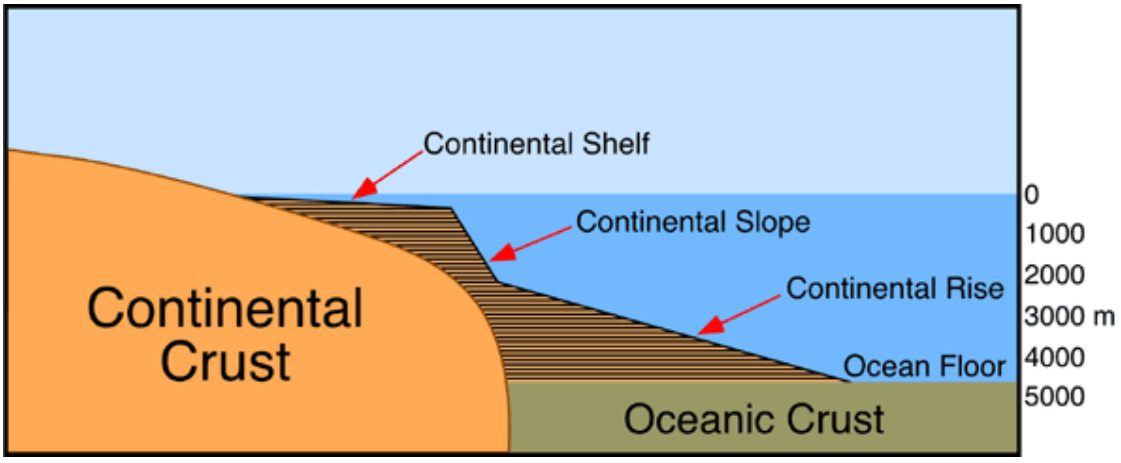
DEEP SEA SEDIMENTS: WHERE DO THEY DEPOSIT AND WHY?

CONTINENTAL SHELF – 165m
Visual Core Description for _____VM27-01_____
The core consists of a layer of clayey sand, a short layer of very fine sand and finally, a long graded layer of very coarse sand, becoming gravelly sand towards the bottom. Coarse fraction 40% near the top and 100% near the bottom

CONTINENTAL SLOPE – 1291 m
Visual Core Description for _____VM07-70_____
Brown sandy clay light gray (N7) grading downward to pale yellowish brown (10YR6/2), brittle but non-compact. Homogeneous throughout. High carbonate content. Sand fraction approximately 40%

CONTINENTAL RISE – 3880 m
Visual Core Description for _____RC22-09_____
0-16 cm: Calcium carbonate rich sand, pale yellowish brown. Coarse fraction of clay 15% consists of abundant foraminifera and foraminiferal fragments, common shell fragments, quartz and sedimentary rock fragments, rare dark minerals and trace glauconite.
16-200 cm: Red terrigenous mud interbedded with clay

HINT: What is the relationship between grain size and distance to shore?



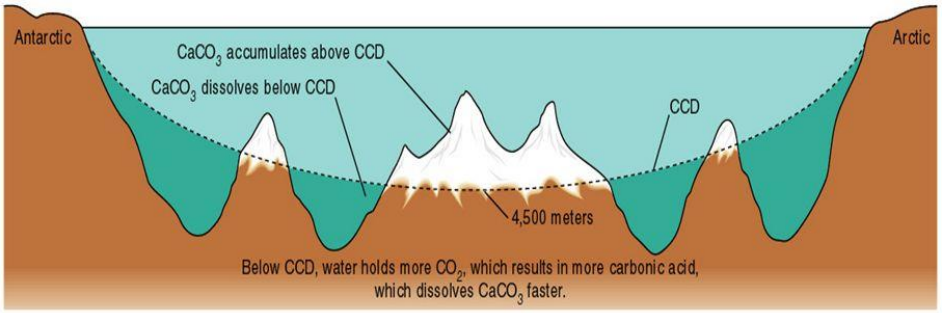
ABYSSAL PLAIN - 5885m
Visual Core Description for ____VM26-155_____
Core is composed entirely of clay with inorganic elements of very rare mica and quartz. Composition of the core is very uniform throughout. Coarse fraction is less that 1% throughout. Very little calcium carbonate content throughout core.

RIDGE FLANK – 4296 m
Visual Core Description for _____VM30-92_____
Foraminiferal ooze, foraminiferal marl ooze and foraminiferal chalk ooze. Coarse fraction high to very high. Biogenic elements are planktonic and benthonic foraminifera, sponge spicules, echinoid spines, pteropods, diatoms and Radiolaria. Inorganic elements are quartz and mica. Authigenic elements are manganese micronodules. Calcium carbonate content is very high.

RIDGE CREST – 3233 m
Visual Core Description for _____VM22-224_____
0-54 cm: Carbonate content high throughout. Coarse fraction 60% to 95% contains mainly high angular obsidian (volcanic glass) quartz, and basalt fragments, increasing toward the bottom**.**

HINT: What is the relationship between sediment calcium carbonate content and water depth? What is the mid-Atlantic Ridge?

Carbonate compensation depth



ICE-RAFTED DETRITUS, N. ATLANTIC (67°N)

Visual Core Description for _____VM28-16_____
Clayey sand, very dark yellowish brown. Coarse fraction about 60% consists of quartz (dominant), basic rock fragments.

HINT: What is "ice rafted debris" and how is it deposited? Where would you expect to find it?

DIATOMACEOUS OOZE (DIATOMITE), 54°S – 2384 m

Visual Core Description for ____VM14-62_____

0-33 cm: Diatomite, light brownish-gray, with abundant very fine black speckling. Gradational color change at bottom contact.

33-65 cm: Diatomite, similar to above but very light brown and little or no black speckling. Base gradational.

65-140 cm: Diatomite, gradually becomes darker downward to very darker gray below 90 cm with increase in dark volcanic detritus.

140-275 cm: Cream diatomite. Burrows extend down to 145 cm. Rough "paper "pulp" texture. No carbonate detected.

HINT: What are diatoms made of? What conditions favor the preservation of this material in the ocean?