Velocity across a stream

For straight sections, fastest in the center
Vertical velocity profile

Fastest flow just below the water surface
River flow cross sections
point bar
cut bank

Figure 10.6

Map view

Maximum velocity

A

A'

B

B'

C

C'
Modes of transport

Bedload versus suspended load
also, dissolved load

Figure 10.14
Longitudinal profile of a river
Water moving downhill by gravity

Figure 10.2
Channel shape & roughness

Figure 10.8

A. Fast
B. Slow
C. Mod fast
Speeding up stream flow
The venturi effect

Figure 10.9
Speeding up stream flow
Speeding up stream flow
Man-made obstacles
Bridge scour during high flow

Note the difference in water height up- and down-stream of bridge
Maximum discharge

Note polish and rounding of boulders

Find max height of water level

Figure 10.10
High-gradient streams

Gravel moved during flood, deposited as flood waned (note sand on top)
River levees

Levees are created naturally by floods
Figure 10.27

Forming levees

Flood plain

Sediment deposited during flood

Natural levees

Backswamp
Major floods may break a levee