



WORKSHEET 5: NUMBER SYSTEMS



Task 1: Study the following text carefully in order to succeed in Task 2.

1. **Base 10 (b = 10)** Decimal system (counting by 10' or 10 count system) is the most widespread. It is associated with the use of fingers on both hands. In the past it was used e.g. by the Inca of South America. The system requires digits to represent the numbers from zero to nine.
2. **Base 12 (b = 12)** The system was used in English and German: e.g. units of measure (12 inches = 1 foot), old money (12 pence = 1 shilling), and also in terms such as a dozen = 12. Some of the units are still in use.
3. **Base 20 (b = 20)** The system was used in French and Dutch. The scale may have originated in finger- and toe-counting. In the past it was used e.g. by the Maya of Central America, or the Yoruba of West Africa. The system requires the use of both digits (numbers from zero to nine), and letters (10 = A, 11 = B, 12 = C, 13 = D, 14 = E, 15 = F, 16 = G, 17 = H, 18 = I, 19 = J).



Task 2: Before you continue, try to find the countries mentioned in Task 1 on the map.

a) Compare: $25_{10} = 2 \cdot 10^1 + 5 \cdot 10^0 = 2 \cdot 10 + 5$

$$25_{20} = 2 \cdot 20^1 + 5 \cdot 20^0 = 2 \cdot 20 + 5 = 45_{10}$$

b) Convert to base 20. Example: $144_{10} = 7 \cdot 20 + 4 \cdot 1 = 7 \cdot 20^1 + 4 \cdot 20^0 = 74_{20}$

66_{10}

78_{10}

520_{10}

c) Can you think of more problems that your friends might like to solve?



Follow up activity for the whole class (in English or your mother tongue)

Can you tell the class about the number system(s) used in your culture?